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HISTORICAL U.S. FORCE STRUCTURE TRENDS: A PRIMER

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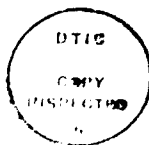
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## PREFACE

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This Paper describes key large-scale posture developments in the U.S. defense program after World War II, and also provides a brief overview of key budgetary determinants of these forces. The purpose of this document is to inform discussion on current posture choices, now that the budgetary picture we are likely to confront in the 1990s has become quite soft. It will be seen that historical posture developments are consistent over time, albeit with certain important exceptions--hence, the advantages of this historical perspective. A glossary of acronyms appearing in this paper appears prior to the main body of the text. > Keywords: Military budgets/history; Military forces United States. (EPC) +



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## GLOSSARY

AAF:	Army Air Forces
ABM:	Anti-Ballistic Missile program
ALBM:	Air-Launched Ballistic Missile
ARNG:	Army National Guard
ASW:	Anti-Submarine Warfare
AVF:	All-Volunteer Force
AWOL:	Absent Without Leave
CENTCOM:	U.S. Central Command
CFE:	Conventional Forces in Europe
CG (CGN):	Guided Missile Cruiser (nuclear powered)
CMMS:	Congressionally Mandated Mobility Study
CRAF:	Civil Reserve Air Fleet
CV (CVN):	Aircraft Carrier (nuclear powered)
DDG:	Guided Missile Destroyer
DoD:	Department of Defense
FF (FFG):	Frigate (guided missile)
FORSCOM:	U.S. Army Forces Command
FY:	Fiscal Year
FYDP:	Five-Year Defense Plan
G&R:	Guard and Reserve
JCS:	Joint Chiefs of Staff
JSPD:	Joint Strategic Planning Document
MEB:	Marine Expeditionary Brigade (roughly, brigade/squadron team)
MEF:	Marine Expeditionary Force (division/wing team)
MFP:	Major Force Program (in PPBS system)
MPS:	Maritime Pre-positioning Ship
MSC:	Military Sealift Command
NDRF:	National Defense Reserve Fleet
O&M:	Operations and Maintenance
OJCS:	Organization of the Joint Chiefs of Staff
OSD:	Office of the Secretary of Defense
P.L.:	Public Law
POMCUS:	Pre-positioning of Overseas Materiel Configured to Unit Sets
PPBS:	Planning, Programming, and Budgeting System
RDF:	Rapid Deployment Force
ROAD:	Reorganization Objective, Army Division
ROK:	Republic of Korea (South Korea)
Ro/Ro:	Roll-on, Roll-off (type of transport ship)
RRF:	Ready Reserve Fleet
SCN:	Shipbuilding and Conversion, Navy
SNF:	Strategic Defense Force
SDI:	Strategic Defense Initiative
SLOC:	Sea Line of Communication
SSN:	Submarine (nuclear powered)
SWA:	Southwest Asia
TAF:	Tactical Air Force
TFW:	Tactical Fighter Wing
Tricap:	Triple Capability (experimental division structure)
WESTCOM:	U.S. Army Western Command
XX:	Division (basic major unit of Army and USMC force structure)

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## HISTORICAL U.S. FORCE STRUCTURE TRENDS: A PRIMER

### INTRODUCTION

This paper documents longitudinal trends in the U.S. defense posture over time, portrayed in terms of certain large-scale indicators. Given the breadth, detail, and complexity of the history of U.S. defense posture, this paper is necessarily elliptic in its description of key developments. Accordingly, the purpose here is not to analyze the reasons for changing force structure over time. Only a limited discussion of the relationship of posture size and mix to budget levels is given: a more comprehensive analysis is quite beyond the scope of this modest effort. Nonetheless, a more detailed review of that topic would reveal many fascinating trends. For our purposes here, the following general observations will have to suffice.

First, posture levels tend to be less volatile than budgets over time. This is largely because the preservation of posture size is an important strategic and organizational goal of the individual services and of the Department of Defense (DoD) generally. It is easier to do just about anything--enhance readiness, modernize weaponry, or increase sustainability levels--than it is to constitute new force structure (or, perhaps more importantly, to replace posture once it is gone).<sup>1</sup>

Second, the major elements of our defense posture, at a sufficiently large level of aggregation, tend to be fairly steady state

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<sup>1</sup>When contemplating posture cuts for any reason--on account of budgetary pressures, for arms control purposes, or what have you--there is the widespread expectation that posture that is stood down can either be held in reserve (either in some formal reserve capacity, or in some other sort of latent status), to be reconstituted should future needs so require. In fact, once posture is removed from a location or inactivated, it is hard to restore or redeploy. Historically, this reality tends to motivate service planners to deplete existing posture in place rather than maintain fewer but more fully ready or equipped, units (or to redeploy units on the expectation of returning them to a theater if necessary). This particular matter is of great interest these days, given the current conventional arms control discussions for Europe (CFE).



entities. Commentators have, indeed, referred to certain "magic numbers" in posture design that exist over time, constants that exist regardless of changes in the strategic situation, budgetary realities, and so forth.<sup>2</sup> Such constants are, for better or worse, an important fact of life in defense planning. These targets are not, as many would believe, the product of pure inertia, but rather often the outcomes of salient tradition, demonstrated analytic requirements, threat capabilities, environmental realities, etc.

Third, since the end of the Vietnam drawdown, one finds surprisingly convergent relationships among specific capabilities within an overall posture except when external conditions intervene. For instance, there is a fairly consistent relationship in the effort devoted by the Army to heavy vs. infantry forces, or in the tactical USAF among air superiority, multi-role, and other aircraft.

Fourth, in many cases, there are firm, significant relationships between budgets and posture. For instance, there are certain trends in the cost of maintaining a given unit over time (a Tactical Fighter Wing, Army division, Navy battle group, etc.) and apparently exist for good reasons that should enter into long-term budget planning.

Fifth, various posture mobilization capabilities (military ones, like Guard and Reserve forces, and civilian ones, like the Coast Guard, Civil Reserve Air Fleet, Merchant Marine, etc.) provide a considerable degree of capability at relatively low cost to the DoD. However, reliance on such forces beyond a certain level has traditionally been inhibited by strategic and political concerns. The cost-effectiveness of such formations is often, moreover, difficult to measure (as are operational comparisons between active and mobilization capabilities).

Sixth, were we to account solely for the cost of posture in hand--divisions, ships, wings, etc.--in terms of the direct costs of that posture, we would see that directly attributable posture costs seldom

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<sup>2</sup>Some examples of these constants include the venerable "600 Ship Navy" target, the tendency of virtually every follow-on bomber program since the late 1950s to consist of about 240 aircraft, the tendency of the Army's active force structure to hover around the 16 division level (since 1962), etc.

come near explaining the size of a service's budget. There are many indirect expenses involved in maintaining any posture (such as training base, logistical infrastructure, etc.) which may vary as a function of the size of the posture actually fielded (or planned). There are also certain overhead functions that are essentially independent of the posture we maintain (headquarters, or our R&D base).

Seventh, our posture objectives, as with budgets, usually exceed what is politically and financially feasible. Ironically, this does not pose as much of a challenge to efficiency and effectiveness as do unfounded budgetary expectations,<sup>3</sup> largely because the costs of major and enduring posture expansion tend to be so very far beyond our reach, even given the most optimistic assumptions about resources. To see how difficult the major expansion of our force structure actually is, consider the unprecedented Reagan-era budget boom. This boom lasted six years, and involved real growth in authority between FY79 and FY85 of about 55 percent. The FY85 budget wound up being higher than any previous budget since the end of World War II. Given this resource picture, plans were made at the start of this period to expand posture to a significant but not dramatic degree (See Table 1 *infra*).<sup>4</sup> Note that the proposals for expanded posture made in the early 1980s still fell

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<sup>3</sup>Excessively optimistic budgetary assumptions can lead to far more trouble, in other words, than analogous posture objectives. For instance, certain Weinberger-era FYDPs projected outyear budgets that would have made possible almost any set of future spending options. Thus, the FY86 FYDP projected a total five-year budget through FY90 of about \$1,950 billion (in FY88\$): this would result from an average annual rate of real budget growth of almost 7 percent over five years. But the actual five years following the plan produced only about \$1,500 billion--and growth has been negative in every year after FY85 so far. Though many are inclined to disregard such unrealistic projections for many obvious reasons, they can have a pernicious effect on our weapon programs. It is not clear, for one example, whether the B-2 "Stealth" bomber would cost as much as it does today on a per-copy basis if budget forecasts made during the formative stages of this program had not been so sanguine.

<sup>4</sup>The data in that table is taken from *Annual Reports of the Secretary of Defense for Fiscal Years 1982 and 1984*, and *Armed Forces Journal International*, August 1982, p. 38. The 1982 JCS prudent risk plan was looking ahead to a force posture to be available in 1991.

substantially short of the JCS "prudent risk" force (which is, by its nature, not significantly constrained by budget and other kinds of constraints). Yet, because of the high costs of building up to these expansion targets, many of the expansion objectives were not achieved: moreover, these relatively modest schemes have already had to be generally abandoned now that the budget has turned downward.

At the present time, we face the possibility of an extended period of austerity,<sup>5</sup> the effects of which could be amplified by changing strategic, political, technological, and other circumstances. Thus, there may be an unprecedented degree of pressure on traditional force design principles. Next to the more immediate problem of defense

Table 1

SELECTED GENERAL PURPOSE FORCE POSTURE OBJECTIVES COMPARED

	Late 1970s Available	Early 1980s Targets	1982 JCS JSPD "Prudent Force"	Revised FY90 Posture
Active Army XX	16	18	25	18-
Active USMC XX (and Amphib Lift, XX-equivs)	3 1+ lift	3 1.5 lift	4 >1.5 lift	3 1.3 lift
USN ships (incl. carriers)	50C (12)	600+ (15)	>700 (22)	560-575 (14)
USAF TFW-equivs (including G&R)	36	40	57	35
Strategic airlift	310 (to add 210 C-17)	360 (to add 210 C-17)	632 total (unspecified)	360 (to add 210 C-17)

Revised FY90 Posture entries are my estimates of the largest posture that could be maintained indefinitely through the early and mid-1990s given recent decisions, *if* no future radical adjustments take place. If cuts do take place, these levels could decline still further.

<sup>5</sup>For a discussion of recent budget developments, see Kevin N. Lewis, *An Overview of Key National Security Spending and Budget Trends Since World War II*, N-2872-AF, The RAND Corporation, July 1989.

procurement,<sup>6</sup> whether or not to revamp our long-term posture plans promises to be one of the most interesting questions before defense planners in the 1990s. To understand some of the underlying forces at work, this paper provides some overview discussion on the evolution of the U.S. posture over time. Below we consider trends in: personnel (active and reserve), and various force structure components (Army forces, Navy ships, USAF tactical wings, strategic forces, and certain mobility forces). But prior to doing so, a few remarks on historical funding matters are in order. These will provide some context for the reader to better understand the resource environment in which historical posture choices have been made.

### THE U.S. DEFENSE BUDGET, FY46-88: AN OVERVIEW

It is useful to begin with a brief historical overview of the U.S. defense budget. Figure 1 shows the DoD budget over the period FY46-88, given in billions of FY88\$ (TOA). Annual figures range from a low of about \$70 billion in FY47 (as demobilization after World War II continued apace) to a high of about \$320 billion in FY85 as the Reagan defense buildup reached its zenith. Historically, much is clear from this Fig. 1--we see quite strikingly the dashing of early hopes that a large peacetime force might not be necessary--this fact brought home by the outbreak of the Korean War, followed by the enduring perception thereafter that a comparatively substantial defense budget would be necessary. In 1948, President Truman had sought to stabilize defense spending at around \$80 billion per year--a budget seven times higher, in real terms, than pre-World War II levels.<sup>7</sup> But then the Korean War, the Soviet acquisition of the atomic bomb, a decision to invigorate NATO defenses, and other policy choices led to the abandonment of such targets.

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<sup>6</sup>Through the most recent revision of the FY90 budget, the decline in the DoD top-line since FY85 has been roughly \$42 billion (a real decline of about 13 percent). However, the corresponding reduction in Procurement has been almost \$33 billion (a decline of more than 42 percent).

<sup>7</sup>See William W. Kaufmann, *A Reasonable Defense*, The Brookings Institution, Washington DC, 1986, p. 20.

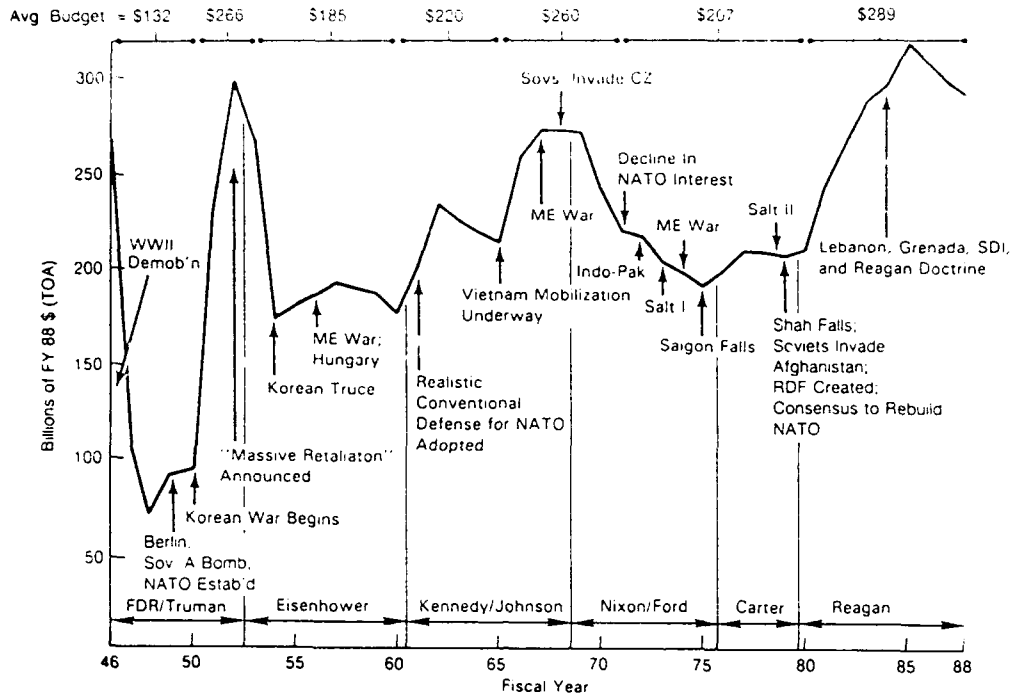


Fig. 1--The U.S. Defense Budget, FY46-88: An Overview

Subsequently, the Eisenhower administration's defense spending goals were set at about \$240-250 billion, with an active Military Personnel target of 2.8 million envisioned. This level of effort in fact represented a ceiling of sorts: spending for conventional defense capabilities was to be held down by reliance on nuclear weapons, and rigid budgeting formulae were utilized to set fairly arbitrary year-to-year constraints on the defense effort as a whole. Of course, the eventual repudiation of the Eisenhower's "New Look" strategy and the abandonment of arbitrary budget ceilings meant that budgets could and would rise higher than the mid-\$200 billion range if necessary.

Shown also in Figure 1 are selected key points and developments that have related to the fate of the defense buildup. The tenure of each presidential administration also is overlaid. The DoD top-line is hardly capricious: with only the partial exception of the peacetime Reagan buildup, major movement comes in response to external requirements, specifically, foreign wars and severe crises.

Conversely, when there is no such stimulus for growth, the budget tends to decline and then stay at relatively low levels--until a crisis intervenes, or the perception arises among the public that too much decay has infiltrated the overall national security effort. The consequence of this cyclical pattern has been a series of more or less internally and logically consistent defense epochs. These are shown also, along the top of Fig. 1, along with the average defense budget prevailing during each of them.<sup>8</sup> Of the seven epochs shown, three represent decidedly "bear" periods for the defense budget, and three epochs are, relatively speaking, "bull" budget intervals (the epoch separated the Massive Retaliation and Vietnam phases can be considered a transitional period of sorts).<sup>9</sup>

As a general rule, the defense budget total reliably reflects what is going on in the world--although the lead times between challenges to Western security and the response in the form of an increased DoD budget are in some cases complex. The average value of the defense budget over the entire period FY46-88 is \$222 billion; since FY54, the average defense budget has been \$232 billion; and since FY62, the average has been \$246 billion. In general, there is a modest upward trend in the DoD top-line over time (a little less than 2 percent per year)--but when a few exceptionally good years are factored out, the trend becomes almost horizontal.

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<sup>8</sup>At the top of Fig. 1, we see from left to right these budgetary epochs: (1) the post-WWII demobilization, (2) the Korean War years, (3) the years of Massive Retaliation, (4) the move to Flexible Response, (5) the Vietnam War years, (6) the "Decade of Neglect," and (7) the Reagan buildup, followed by the more recent decline--which, even though it is in its fifth consecutive year, still involves historically high defense budgets on account of the dramatic size of the overall buildup in the early 1980s.

<sup>9</sup>The average budget for the 20 or so years contained in the bear periods is some \$180 billion; and for the 19 bull years, the average defense budget is about \$275 billion. These two numbers fairly characterize the realistic bounds of the defense budget over time, in terms of its typical peaks and nadirs.

## Close Up on Historical Developments and the Budget, FY46-88

Let us now review some of the determinants of Fig. 1 in more detail. After FY46, which still includes direct support of World War II requirements, the abrupt demobilization of the U.S. national security effort is evident.<sup>10</sup> Following the outbreak of the Korean War in June 1950, it was clear that our traditional, mobilization-base approach to national security was too risky, and so a larger standing force, increasingly forward deployed, was retained and reinforced after the Armistice.<sup>11</sup>

Concerns with the credibility of U.S. strategy, new strategic requirements, and crises over Berlin, Cuba, and other hot-spots stimulated, by the early 1960s, a reorientation of U.S. strategic concepts, prompting wide-ranging conventional forces modernization and expansion plans. The new strategic nuclear policy devised by Kennedy and McNamara relied on a more efficient missile, not bomber, dominated force and down-played the importance of strategic defenses. In some sense, this reconfiguration of a very broad and ambitious strategic

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<sup>10</sup>For instance, in August 1945, total Army manpower (less personnel assigned to the Army Air Forces) stood at 5.9 million in 89 divisions, and the Army Air Forces (AAF) consisted of 218 groups. But these strengths decayed with, if you will, a half-life of 4 months. By 1 January 1946, Army manpower stood at 4.23 million while AAF maintained 109 effective groups; by July 1946 the Army had shrunk to 1.89 million personnel (in about a dozen divisions, many understrength), and AAF strength had fallen below 52 effective groups.

<sup>11</sup>Even so, to hold down budgets, great reliance was placed by President Eisenhower on nuclear forces, which were perceived as more cost effective even if less strategically flexible. The objective in relying on nuclear forces was not just to hold down day-to-day defense costs. The administration was not interested in the agonizing prospect of a replay of a painful conventional war contingency, especially an ambiguous, controversial war like the one in Korea. At the time, it was widely believed that a superior nuclear deterrent could deter smaller challenges (or as General LeMay put it, if you could "lick the cat, you could lick the kitten"). And much exploration of the use of so-called tactical nuclear explosives proceeded on the presumption that this use of technology would permit scaled-down and relatively less expensive general purpose forces to accomplish the same combat roles as traditional ground and other theater forces: an important consideration given the manpower predominance of an apparently unified Sino-Soviet ground force threat.

effort was exploited to free up funds needed to enhance conventional deterrent capabilities.

Plans to rehabilitate and rationalize U.S. strategy, particularly for credible conventional defense in NATO, were to be severely disrupted, however, by the pressing requirements imposed by the Vietnam War. The requirements of this contingency not only redirected the shape of many U.S. security programs, but the direct costs of the war also probably amounted to a total of some \$500-550 billion, depending on how costs are computed and assigned.<sup>12</sup>

The effects of Vietnam produced a period of what might be called anti-military backlash, and budgets declined and stayed down.<sup>13</sup> We see that, after a wartime peak (in FY68) of some \$280 billion, the budget declined rapidly to \$193 billion by FY75. Dramatic force reductions also took place. Total armed forces personnel strength fell from 3.5 million to 2.1 million over the same period. The number of Army and USMC active ground divisions combined dropped from 23 in FY68 to 16 in FY71. The Navy's general purpose combatant fleet (less amphibious and mine warfare ships) was reduced from 444 in FY68 to 285 in FY73. USAF tactical wing strength declined less abruptly, from 25 to 21 active TFW equivalents between FY69 and FY71. In addition to this posture erosion, weapons programs were cancelled and deferred in large numbers--this was

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<sup>12</sup>The Vietnam War epoch coincided with a number of other developments which had a serious effect on U.S. posture *vis a vis* our net resume of security commitments. For one thing, the threat in many places, including Europe, became greater over that time: in 1968, the Soviet Union invaded Czechoslovakia, a development which left five in-place heavy divisions that much closer to the front lines in Germany. Improvements in Soviet forces were noted. And the withdrawal by France in 1966/67 from NATO's integrated military structure posed certain hardships on the United States, as did the changing global economic environment.

<sup>13</sup>Other pertinent effects attributable to the war in Vietnam included a transient phase of neo-isolationism (as with various proposals to bring home U.S. troops in Europe put forward by Senator Mansfield), the shift to an All-Volunteer Force in 1973, the passage of the War Powers Act the same year, the cancellation of various strategic mobility initiatives (so as to prevent further U.S. interventionist adventures elsewhere--never mind the fact that these initiatives were configured primarily with NATO reinforcement in mind), and so forth.



exacerbated by some noteworthy acquisition fiascoes--and R&D initiatives were similarly constrained.

As the worst of the so-called post-SEA "hangover" receded, the highest priority before the United States was catching up on the gains the Soviets had made during our preoccupations outside Europe, and of putting on line the never fully deployed robust theater defenses once planned for Europe. These initiatives took several forms. New generations of major conventional theater combat systems (fighter-attack aircraft and Army weapons) were moved into production. The active force grew slowly: between FY71 and FY76, the number of active Army divisions increased from 13 to 16, and the number of USAF active tactical fighter wings grew from 21 to 23. There were bleak spots remaining nonetheless. Army posture relied heavily on the Guard and Reserve for "round-out" units and personnel, rehabilitation of the Navy was scaled back, and modernization of U.S. strategic forces was deferred.<sup>14</sup> And some truly appalling deficiencies remained and grew worse over the course of the 1970s: these included severe decay in the quality and morale of U.S. personnel, inadequate readiness, and insufficient U.S. strategic mobility capabilities.

It is impossible to say just when--or more properly, over what period of time--the residual effects of Vietnam began to fade. Note that the interval FY75 to roughly FY79 marked a period of limited force structure expansion and modernization that was necessary to compensate for force reductions that had occurred as a result of Vietnam and other factors, such as Soviet qualitative force improvements.<sup>15</sup> When it came to reviving the consensus to put a meaningful global defense posture

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<sup>14</sup>Other factors aggravated low budget levels. For instance, under Title VIII of the DoD Appropriation Authorization Act of 1975, major Navy surface combatants were required to be nuclear powered. But this led to ships with intolerably high unit costs, and further constrained initiatives to rebuild the Fleet. Similarly, diversions of strategic spending to the ABM program and rethinking of strategic principles, along with the apparent role of arms control as a means of constraining strategic spending costs and certain other problems (where to base a follow-on ICBM, for instance, in light of the new silo-busting threat posed by Soviet heavy ICBMs), hamstrung the orderly modernization of the Triad through the mid-1970s.

<sup>15</sup>See *Force Structure and Long-Range Projections*, Hearings Before

back on line, however, it took a series of major global upsets to eventually stimulate significant upward movement in DoD budgets.<sup>16</sup>

Beginning with the FY81 Carter administration budget submission (and with subsequent steps taken by both the new Reagan administration and the Congress), a modestly upward trend of the previous half decade's defense budgets was sustained. This effort not only consisted of initiatives to modernize the forces and, perhaps more important, measures to remove intolerable problems in readiness and personnel quality. Moreover, once the Reagan buildup got underway, some fairly dramatic, and in retrospect unrealistic posture *expansion* enterprises were launched.<sup>17</sup> By FY85, the defense budget was more than one seventh greater than that of the peak of the Vietnam war. But, as I noted elsewhere, with the downturn in spending prospects, OSD-mandated posture reductions have already begun. For instance, in April 1989, Secretary of Defense Cheney ordered a number of older surface combatants transferred to the Navy Reserve, announced a reduction in the Navy's carrier fleet goal from 15 to 14 CV/CVNs, and ordered the deactivation of an active Army brigade, among other things. The situation for the future is anything but auspicious.

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the Task Force on National Security Programs, Committee on the Budget, House of Representatives, July 1975, pp. 61, ff.

<sup>16</sup>These include Soviet and other Communist adventures in the Third World (in Africa, the Middle East, and Southeast Asia), the collapse of our admittedly fragile defense concept for Southwest Asia--the Northern Tier--with the fall of the Shah in 1979, the Soviet invasion of Afghanistan, the ejection of the Somoza regime in Nicaragua and improvement of Cuban forces, and so on. On the plus side, it should be noted, were the propulsion of China into the Western camp, demonstrations of the high quality of Western weaponry *vis à vis* Soviet armaments, and so on.

<sup>17</sup>As noted in Table 1 *supra*, the most noteworthy of these was the plan to expand the U.S. Navy's fleet by more than 20 percent to a so-called 600 Ship Fleet standard. In addition, the Army moved to add two active and two reserve divisions to its force structure, and the USAF outlined plans to expand its tactical posture from 36 to 40 TFW. Some growth was achieved, though in some cases (e.g., the Navy up until 1985, it was the procurement efforts of prior administrations that can be credited for growing force levels).

## CONSTITUTION OF THE DEFENSE BUDGET BY SERVICE

What about relative resource priorities along service and organizational lines? How have U.S. spending patterns reflected strategic and other priorities, and how might these priorities lead to consequences for the postures of the affected services and service branches? Figure 2 is an overlaid portrayal of service budgets, shown for a period extending back to FY46. Not shown in this chart is the rise of a separate defense-wide/OSD/OJCS budget slice,<sup>18</sup> beginning with the McNamara years. Some summary data--which include values for the non-service agencies--given in Table 2.

One interesting feature of this chart is the very high degree of stability in the Navy's recent budgets as a share of the defense budget as a whole. The Navy budget hovers within a range of 27-33 percent over most of the period shown. In the last few years, it has done slightly better than that. The reasons for this are many, but among them, two explanations stand out. First, the Navy is, in some sense, the most diversified of the services.<sup>19</sup> Second, the Navy seems to enjoy the effects of a powerful Congressional support base more than some other services at various times. This is not to say that the Navy is immune to the effects of defense politics, as experience particularly in the 1970s illustrates. But for many reasons, the Navy is highly resilient to both internal and external shocks that might affect its force structure.

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<sup>18</sup>The figure for defense-wide spending, as we see, tends to grow steadily over this whole period; its rate of growth and, only recently, its absolute amount have declined, first because of the change in the method used to account for retired pay, and, then, on account of the overall defense downturn. These Defense Agencies and other organizations have had two primary purposes: to consolidate disparate, parallel service functions into more effective and efficient "clearing-house" agencies (such as intelligence, logistics, etc.), and to provide DoD-wide oversight of new or growing areas, particularly technological ones (as with nuclear weapons, communications, SDI, etc.). Consequently, they have grown in both size and importance over time.

<sup>19</sup>The Navy has been described as a "blue chip" stock, or the "Ma Bell," of the services, inasmuch as it maintains not only surface and submarine forces, but several air forces, its own army, a space force, a strategic force, mobility forces, and even some non-DoD capabilities (the Coast Guard would come under the operational control of the Navy in wartime).

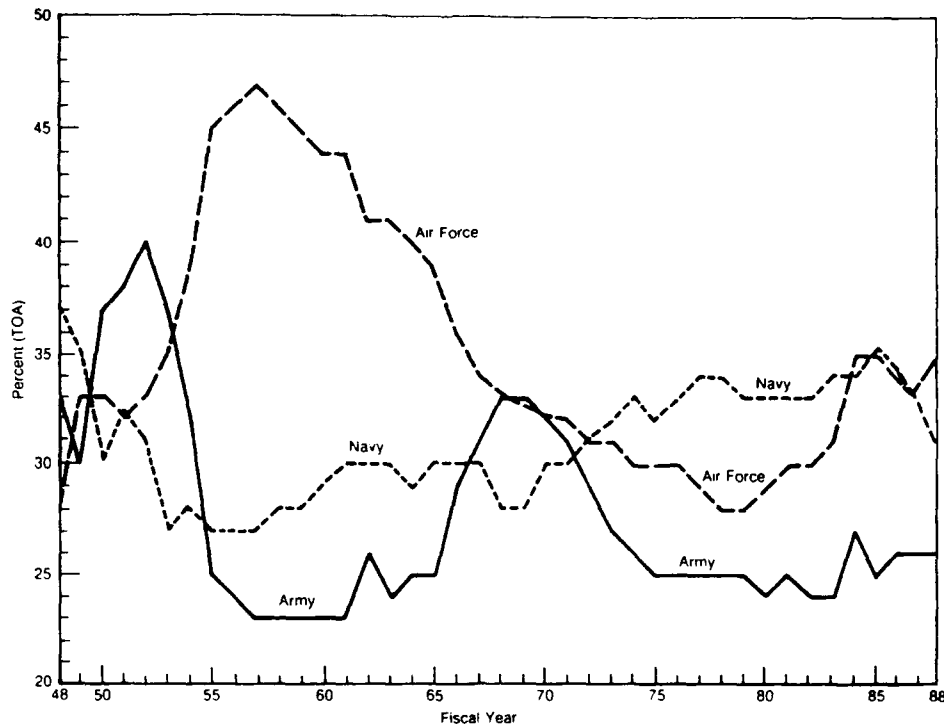


Fig. 2--'Competitive' Service Shares of Defense Budget, FY48-88

Table 2

AVERAGE VALUE OF SERVICE BUDGETS DURING SELECTED EPOCHS,  
(BILLIONS OF FY88\$, TOA)

Org.	Average Annual Value for Groups of Fiscal Years:						48-88	62-88
	48-50	51-53	54-61	62-69	70-80	81-88		
Army	28	103	46	71	57	74	62	66
Navy	29	77	53	73	68	98	69	78
USAF	27	88	85	92	63	94	78	81
DoD-wide	-	-	3	13	23	24	14	20

The Air Force changes the most over this period, and this is chiefly attributable to changing U.S. strategy as well as external contingencies. Within the USAF resume of missions and responsibilities, strategic and tactical air forces consume the majority of funding (the USAF also spends the most of any service on strategic mobility forces

and on R&D). As national strategy changes, so do internal USAF priorities as well as the USAF's top-line. The USAF undoubtedly also enjoys considerable Congressional support, but the controversial nature of many of its undertakings (particularly strategic nuclear and airlift forces) makes it somewhat vulnerable to force shocks related to strategy and political shifts.

Finally, the Army does, at least in a budgetary sense, relatively better during hot contingencies (that is to say during the Vietnam and Korean War episodes). Conversely, the Army budget retrenches during peacetime. Putting aside the fact that the Army is to some extent a mobilization service when it comes to contingent requirements, some other facts explaining the Army's budgetary fate during non-conflict epochs include the lower capital intensiveness of the Army (and the less "glamorous" quality of many Army procurement efforts), the concentration of fast money accounts in the Army,<sup>20</sup> the occasionally weaker Congressional support experienced by the Army in a highly competitive resource environment, frequent uncertainty about Army roles and missions, and popular discontent with certain aspects of the Army's planning matrix.<sup>21</sup>

#### U.S. DEFENSE BUDGET BY MAJOR FORCE PROGRAM (MFP)

The major refinement of the defense budget accounting process since World War II was implemented by Secretary of Defense McNamara under the aegis of the overall Planning, Programming, and Budgeting System (PPBS).

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<sup>20</sup>In the USAF and Navy, investment spending averaged, over the period FY62-88, 49.3 percent and 50.1 percent of each service's total budget, respectively. However, over that same interval, Army operational spending averaged 67.3 percent of total Army TOA. The Army's reliance on large numbers of military personnel makes it especially vulnerable to near-term controversies; and its forward deployed character has from time to time stimulated balance of payments, burden sharing, and other topical concerns.

<sup>21</sup>The Army in wartime obviously suffers the majority of casualties; it may place other burdens on the population (e.g., conscription); and it is closely identified with intervention abroad. For these and other reasons, the Army is often viewed with less favor by the general public than the other services.

PPBS described ten major force programs (MFPs) into one of which every defense dollar was to fall. But the PPBS MFP system only takes us so far even under the best of circumstances. There simply remains too much ambiguity and complexity within the U.S. military's total inventory of activities to permit categorical budgetary refinement beyond a certain point. Proposed refinements and alternatives to PPBS for generating more detail and precision have not only tended to leave large, unresolved, overhead accounts, they have not really addressed regional budgeting problems.<sup>22</sup> Even so, the PPBS categories afford us the best means for reviewing relative operational and strategic priorities over time, as we shall see now.

Figure 3 divides the DoD budget (TOA) into the ten separate Major Force Programs (MFPs), in order to point out major shifts in the scale of the U.S. defense effort, as measured by these categories.<sup>23</sup> The defense top-line has been discussed above, so this commentary provides the highlights of some selected internal developments.

Naturally, the most conspicuous indicator over time is Program I, namely Strategic Forces. As World War II demobilization wound down,

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<sup>22</sup>Take a practical illustration of the categorical uncertainties inherent in the current PPBS budgeting system. Many KC-135s are considered for budget purposes to be "strategic forces," but they would be essential in supporting the rapid conventional reinforcement of Europe; in so doing, they would be supporting both the "general purpose" and "strategic mobility" missions (among other things). On the other hand, AWACS is nominally a "conventional forces" asset, but some could be assigned both routinely and in emergencies to strategic homeland air defense duties. One asks: how does one work the books under such circumstances? Bill the tankers (or AWACS, or anything else) fully to strategic forces, to GPFs, or rather to some mix? And if one decides on a mix, how can one assure any kind of consistency in our accounting scheme from year to year? It is apparent how quickly problems can multiply.

<sup>23</sup>The 10 MFPs are: 1-Strategic Nuclear Forces, 2-General Purpose Forces, 3-Intelligence and Communications, 4-Airlift and Sealift Forces, 5-Guard and Reserve Forces, 6-Research and Development, 7-Central Supply and Maintenance, 8-Training, Medical, and Other Personnel, 9-Administration and Associated Activities, and 10-Support of Other Nations. Under the provisions of the FY87 DoD Appropriation Bill (P.L. 99-591), a new, eleventh MFP--for Special Operations Forces--was created. In FY87, MFP XI emerged in the budget as a separate entity.

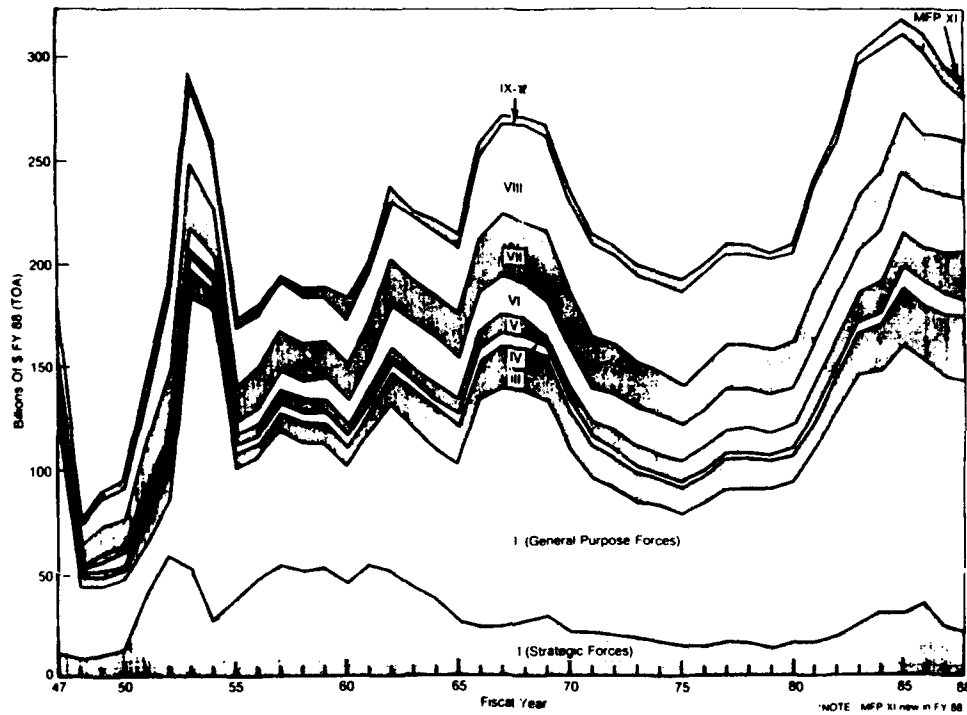


Fig. 3--U.S. Defense Budget by MFP, FY47-88, TOA

Program I spending fell to the fairly low range of \$8-14 billion. The Korean War and Soviet acquisition of the Bomb provided a sharp stimulus to strategic enterprises in the form of both bombardment operations against North Korea and a decisive commitment of resources to nuclear deterrence as the backstop of the doctrine of containment. Peak wartime spending on Program I ran to some \$54 billion a year; subsequently, over FY54-61, Program I spending averaged \$47 billion a year. A shift away from such a heavy strategic nuclear emphasis and the abandonment of costly bomber fleets in favor of more efficient missile forces led, after 1961, to a substantial reduction in Program I spending, with almost a 50 percent decline transpiring from FY62 to FY65. For almost two decades, MFP I spending averaged some \$15-20 billion per year. Finally, with the simultaneous replacement of all three legs of the Triad looming as requirements, Program I spending, over FY81-88, grew to an average of some \$25 billion a year.

Throughout the period, MFP II (General Purpose Forces) was the largest portion of the Defense budget. It averaged \$83 billion annually. Overall, transient increases in MFP II spending were the main causes of overall budget growth during the Korean and Vietnam War years, and after 1982. In FY53-54, MFP II averaged \$141 billion; in FY66-67 it averaged \$105 billion; and after FY81, it has averaged \$118 billion. Obviously, given the nature of U.S. strategy since the early 1960s, Program II is bound to have been, and will inevitably remain, the major part of the defense budget: it has been this budget which has more or less to remain the support of the defense postures to be described. Conversely, should the defense budget decline significantly in the years ahead, Program II budgets--and the GPF postures maintained thereby--will naturally be the most affected of all DoD enterprises.<sup>24</sup>

#### REGIONAL BUDGETARY WEIGHTING OF THE U.S. DEFENSE EFFORT

Given the alleged micro-management scrutiny to which the U.S. defense budget is said to be constantly subjected, it comes as a surprise to many people that no body of "Generally Accepted Accounting

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<sup>24</sup>Other MFP entities reflect spending in support of our conventional forces-based Flexible Response strategy, for instance, MFP IV (strategic mobility), MFP V (guard and reserve forces), MFP XI (SOFs), and much of the support MFP accounts (VII through X). But from both budgetary and posture perspectives, these are fairly modest compared with the big MFP II program. For instance, Airlift and Sealift (MFP IV) averaged about \$4 billion annually over the entire period shown, ranging from \$2 billion in FY48 to \$6 billion in FY53. In general, fluctuations reflect both the requirements of specific contingencies and periodic Military Airlift Command modernization initiatives (the C-5 and C-141 in the early and mid-1960s, and the C-5B and C-17 in the 1980s). Guard and Reserve spending also largely supports our GPF strategies. There are six U.S. Guard and Reserve Components under the DoD (seven, including the U.S. Coast Guard Reserve--the USCG operates under the supervision of the Department of Transportation in peacetime, and the Navy in wartime). The forces assigned to these elements, their role in full-mobilization contingencies, and the quality of the units have all increased steadily over time, albeit with certain exceptions. Spending on Guard and Reserve Forces V) averaged \$10 billion annually, ranging from \$2 billion in FY47 to \$18 billion in FY85. Here, the trend is uniformly upward over time,



Principles" exists to measure in any systematic detail the costs of large-scale U.S. defense enterprises in a very precise regional or mission-oriented way.<sup>25</sup> Without officially accepted accounting means, it is difficult to argue whether "enough" has been or is being spent in support of some critical goal--or for that matter, whether spending on some task exceeded some reasonable threshold of diminishing marginal returns. Definitional problems also make it difficult to assess matters of balance in planning--whether one's posture could be considered modern but unready, or ready in one theater but not in another, or what have you.

Thus, relatively little has been written on the subject of U.S. regional defense priorities, as these might be expressed in budgetary terms. Consequently, I have constructed an explicit all-service regional metric, which is shown in Fig. 4. This metric was computed by estimating the direct and pro-rated support costs of certain major posture building blocks, with uncertain swing forces weighted by coefficients<sup>26</sup> and charged against particular theaters accordingly.

Given these data--and for all of their shortcomings, I know of no better numbers to use--certain conclusions can be drawn. During the 43 year period from FY46-88, NATO and Other Europe accounted for the largest portion of the U.S. defense budget. The average annual expenditure for NATO was \$105 billion (50 percent of the total), ranging from \$30 billion in FY47-48 to \$165 billion in FY85. As a percentage of total DoD spending, that devoted to Europe ranged from 25 percent in

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<sup>25</sup>Kaufmann notes that DoD has frowned on alternative portrayals of budgets (e.g., regional, functional, and other more specific presentations) because these "are thought to invite intrusion by Congress into decisions seen as the prerogative of the executive branch." See *A Reasonable Defense*, op. cit., pp. 12-13.

<sup>26</sup>The coefficients are based on the allocation of division forces by theater appearing in William W. Kaufmann, *Planning Conventional Forces, 1950-1980*, The Brookings Institution, Washington, DC, 1982, with those figures adjusted when anomalous external factors (e.g., Vietnam) were involved. For a discussion of the methodology underlying this Figure, see Kevin N. Lewis, *What Does a Continuing Budget Decline Imply for the U.S. Contribution to NATO's Conventional Defense?*, N-2874-AF, The RAND Corporation, November 1988.

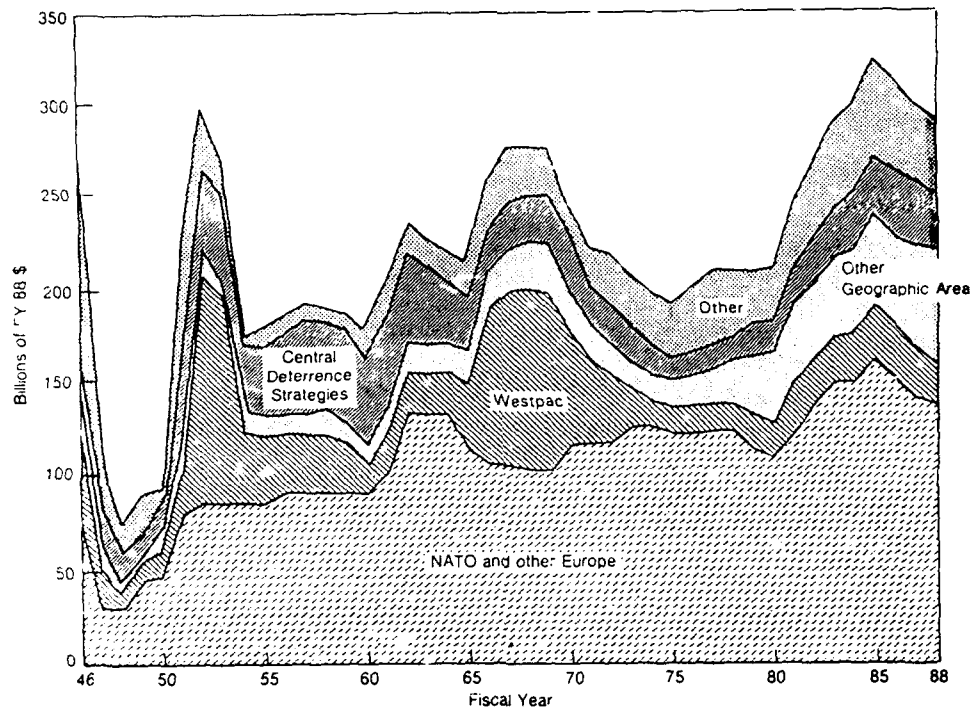


Fig. 4--Regional Budgetary Weighting of U.S. Defense Effort, FY46-88

FY46 to 66 percent in FY74. This account, consisting of our NATO commitment and related forces, is clearly the "meat and potatoes" of our defense establishment from a resources point of view.

WestPac made up the next largest share of the defense budget, averaging \$33 billion (16 percent of the total) annually. The WestPac account is typically low, save when a combat action is underway. The total figure here ranged from \$5 billion in FY48 to \$121 billion in FY52. Percent of the total budget ranged from 5 percent in FY48 to 41 percent in FY52. Note the post-Guam Doctrine (1969) decline in routine WestPac spending; this coincided not just with Vietnamization and withdrawal from Southeast Asia, but also with the reduction of U.S. forces stationed in Korea from two to one division, and subsequently, to something less than a full division.<sup>27</sup>

<sup>27</sup>In 1977, President Carter contemplated the withdrawal of the 2nd infantry division from South Korea. This plan proved politically impossible to execute, and was dropped; most of the division remains in the ROK (some 45,000 military personnel are in Korea, and some 95,000 are based in Korea, Japan, and in Okinawa).

Central Deterrence Strategies (mainly central nuclear forces)<sup>28</sup> averaged \$26 billion (12 percent of the total) annually, but also ranged widely, from \$11 billion in FY47-49 to \$50 billion in FY61. Percentages ranged from 5 percent in FY46 to 25 percent in FY61. Obviously, spending on these nuclear forces tracks closely with well-known policy shifts described in the discussion earlier on Major Force Program I. Whereas, Other Geographic Areas (including the Western Hemisphere, and specific SWA/ME/Indian Ocean accounts) averaged \$18 billion (8 percent) annually and ranged from \$3 billion in FY48 to \$47 billion in FY85.

Swells in the DoD budget from the years FY51-53 and FY65-69 were due to increases in WestPac (Korea and Vietnam). If any regional augmentations correspond to the Reagan-era buildup, they are modernization of forces for Europe, new strategic forces, and both combat forces and lift capabilities pertinent to the CENTCOM/RDF scenario.<sup>29</sup>

## MILITARY PERSONNEL LEVELS OVER TIME

Having looked at the budgetary inputs to our defense planning process, now let us consider the outputs of that enterprise, specifically the historical posture that these budgets have maintained. Figure 5 shows the historical strength of the U.S. active military personnel complement over time. Data are stacked by parent service.<sup>30</sup>

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<sup>28</sup>Theater nuclear forces are substantially charged to their regional theater.

<sup>29</sup>In constant FY88 dollars, Vietnam probably accounted cumulatively for something like \$500-550 billion dollars--not including lost funding resulting from the effects of post-war, anti-militarist sentiment. In contrast, the direct, attributable costs of the Korean War were more like \$400 billion. It is impossible to say what a major Southwest Asian "half war" would cost--if that is the way to put it. But the forces that have provisionally been available to CENTCOM are actually *smaller* in total size than the force committed at the height of the Vietnam War, measured in every way (divisions, wings, personnel, etc.). And these forces were committed to a combat theater in which we had the relative luxuries of a preexisting ally and also some years to build up a logistical structure. By analogy, then, a major Southern Asian scenario could indeed represent a diversion which would ultimately have the budgetary impact upon NATO (within an order of magnitude either way) that Vietnam did.

<sup>30</sup>Army Air Force personnel are broken out and counted as USAF for

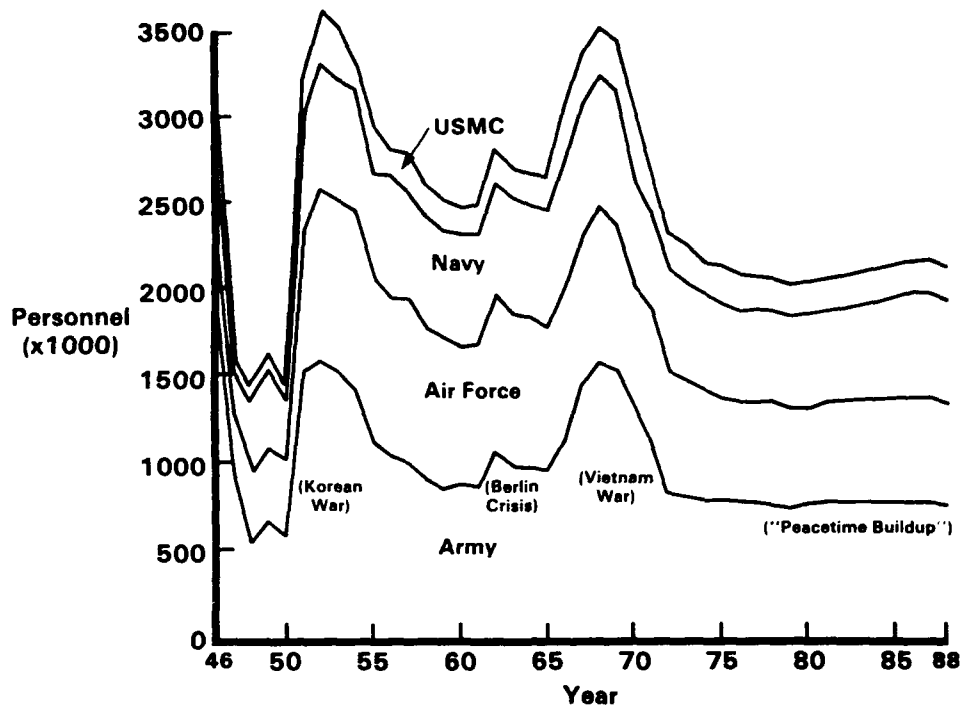


Fig. 5--U.S. Active Military Manpower, 1946-88

Figure 5 shows a number of developments quite clearly. First, we see a precipitous post-war demobilization from World War II force levels. Personnel strengths decline from a level of over 12 million in 1945 to just under 1.6 million in only two years. Force levels languish at around 1.5 million until the outbreak of hostilities in Korea. Then, active personnel strengths (including Federalized Guard and Reserve personnel) jump to a 1952-53 high of about 3.5 million.

Thereafter, forces again decline, but not so dramatically. Personnel strengths throughout the rest of the 1950s do not dip below 2.6 million, which nonetheless is a figure significantly higher (by roughly half a million) than the peacetime levels maintained after the end of the Vietnam War. This is true despite the fact that in many cases, fewer combat formations were maintained. There is a minor jump around the time of the Berlin Crisis (again, reflecting in part the mobilization of substantial reservist strength), and then a much bigger

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years prior to the establishment of the U.S. Air Force as a separate service.

buildup, almost to Korean War levels, during the Vietnam War. Following the Vietnam demobilization (when total strength levels declined from 3.5 million to a little over 2 million), force structure also shrinks. But after the end of the so-called "Decade of Neglect," we see the rehabilitation of U.S. posture (in terms of numbers of active military formations) *without* a corresponding increase in the number of active military manpower. For instance, service strengths across the board in 1974 are just about identical to those found in 1987.

The data, then, reflect a number of things, of which three points are particularly noteworthy. First, active manpower strengths reflect quite reliably the state of the world, chiefly because active military manpower can be acquired much more quickly than other elements of posture strength (combat-ready formations, major weapons, etc.). To take one case in point, while the Vietnam War greatly reduced the size of the Army's U.S.-based strategic reserve, there was no real net reduction in the number of world-wide Army personnel available but not committed directly to Vietnam.<sup>31</sup>

Second, the U.S. military has apparently become considerably more efficient over time in maintaining its posture. That is to say, it takes fewer personnel over time to maintain an equal or even greater number of major units than it did in the past (especially in the 1950s). This is a consequence of several things, including the increasing costs of personnel over time, the reduction in the size of certain overhead and non-posture related personnel complements, the reduction in the number of personnel considered non-effective at any given point in time (including those AWOL, in transit, incarcerated, confined as patients, etc.), the greater use of civilians for many jobs, and the increased professionalism of the military, particularly after the institution, in

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<sup>31</sup>Of course, there were selective problems for Army manpower planners at this time, including shortages in critical skills (e.g., helicopter pilots, senior NCOs, etc.), reconfigurations in training programs that lowered Army readiness for non-Vietnam contingencies to some degree, and the like. But in terms of numbers of bodies, the United States showed here, as before, that it could acquire the personnel needed in the event of crisis or actual contingency.

1973, of the All-Volunteer Force.<sup>32</sup> This efficiency was demonstrated in the mid 1980s, when the Army was able to establish two new active divisions without increasing overall troop end-strengths.

Third, there exist what might be called natural levels of military personnel in modern times--given recent combinatorics of strategic responsibilities, missions, forward deployments, etc. The steady-state strengths for the different services are apparent in Table 3 below: for reference's sake, Table 3 provides some summary data on active armed forces strength, grouped by logical epochs.

Table 3

ACTIVE MILITARY PERSONNEL LEVELS, BY EPOCH,  
(THOUSANDS OF PERSONNEL)

Year or Epoch	Average Active Personnel Level During Epoch				
	All DoD	Army	USAF	Navy	USMC
1945	12123	5985	2282	3381	475
1946	3030	1435	456	983	156
1947-50	1526	623	381	437	85
1951-54	3435	1516	924	770	225
1955-61	2659	948	878	644	189
1962-65	2712	997	859	666	190
1966-71	3210	1389	850	698	273
1972-80	2128	853	546	537	192
1981-88	2133	776	596	565	196

<sup>32</sup>Again, to take an Army example, while Army strengths in the late 1950s were higher than those of the late 1970s and early 1980s (860,000-1,000,000 as opposed to 770,000-780,000), perhaps one-third of these personnel were not professional (that is, they were generally conscripts). Thus, the careerist portion of the Army was in the 1950s smaller than it was two decades later. Increasing the representation of careerist personnel improves quality, reduces overall personnel needs, lessens the need for training and other kinds of overhead, enhances readiness, etc.

## U.S. Reserve Personnel Strengths

Reliance on Guard and Reserve forces has followed the steadily increasing spending on MFP V, reflecting the constantly growing reliance on the Total Force, especially after the shift to the AVF in 1973. Speaking broadly, the USAF and Army have relied the most on Guard and Reserve forces. Recently, for instance, the size of the Army's high priority reserve elements exceeded the size of the active force for the first time. The high quality of many reserve units, changing scenarios, and budget pressures ensure that the G&R will play an ever increasing role over time. Thus, the total reserve posture of the United States has grown steadily, from fewer than 800 thousand high priority reservists in FY78, to more than 1.15 million in FY88. More combat units have been added since 1980 (including two Army divisions, more than two USAF TFW-equivalents, and increasing numbers of non-obsolescent Navy ships).

Thus, consider historical reserve personnel strength: Figure 6 shows (again, in a stacked format) levels of high priority (paid-drill, Selected Reserve personnel) over the period 1956-88.<sup>33</sup> We see a number of noteworthy trends in Fig. 6. First, Army reserves were a relatively low priority throughout the 1950s, despite the fact that as many as 50 Guard and Reserve *divisions* were then counted on the books (see below). Predictably, reservist strengths grew somewhat at the time of Vietnam, as some saw the G&R as an alternative to active military service in an unpopular war.<sup>34</sup> Subsequently, the Army reserve posture grows steadily: by 1988, the number of personnel on high priority reserve status actually exceeded, for the first time ever, the number of personnel on active Army duty.

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<sup>33</sup>Because of the widespread mobilization of reserve personnel for the Korean War and NATO build-up, examination of data prior to 1956 would include too many statistical anomalies.

<sup>34</sup>Numbers dip around 1968, but this is on account of some limited reserve mobilizations following the Tet Offensive, the capture of the *Pueblo*, and the Soviet invasion of Czechoslovakia.

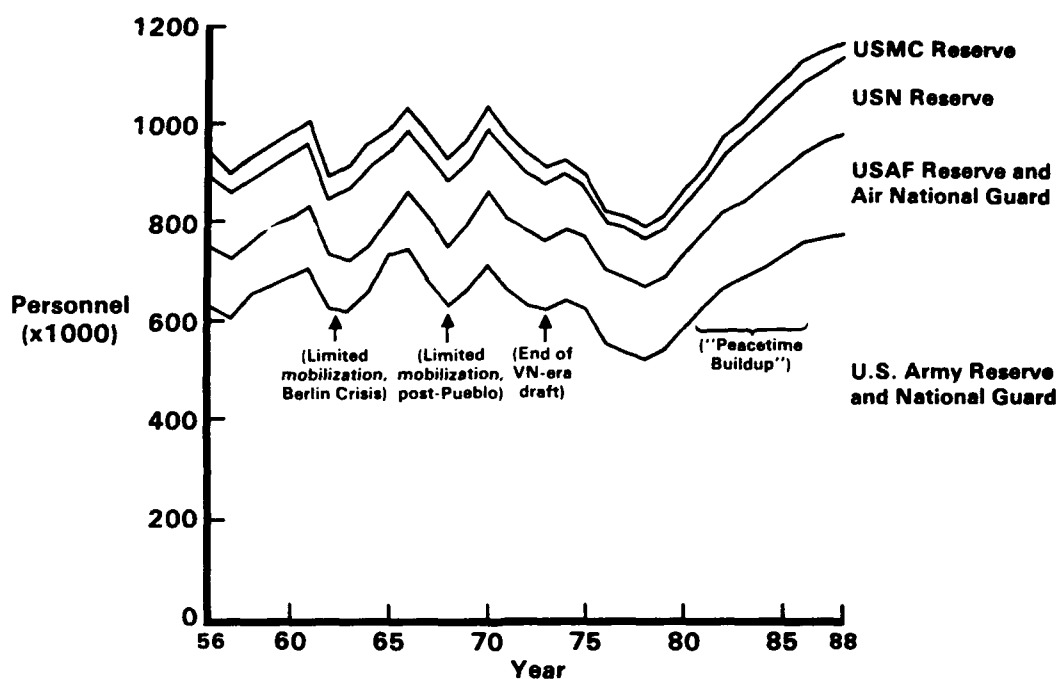


Fig. 6--Selected U.S. Reserve Personnel Strength, 1956-88

The overall USAF National Guard and Reserve trend is likewise noteworthy: it grows steadily over this entire period (and is reflected in the posture, as we will see in a moment). The Navy Reserve remains relatively more constant over the long run, as does the USMC Reserve. All in all, it can be said that the Guard and Reserve has become more capable over time, and has played a proportionately greater role in overall U.S. capabilities. This will undoubtedly continue in the future should budget realities, arms control regimes, and other developments lead to cuts in the size of active U.S. posture. How far one can and should rely on reserves remains a complex question.

## HISTORICAL U.S. ARMY FORCE STRUCTURE

Of all the services, the Army has most reflected the consequences of changing external requirements in terms of its posture, personnel levels, etc. over time. As we saw above, the Army resides at a relatively low proportional share of the budget during times of low international stress, but increases the most, proportionately, when the



requirements of an external contingency so demand. This is apparent not only in overall force size, but also force mix (the latter being often quite dynamic even during peacetime). In short, the Army, among the U.S. services (and with the partial exception of the Marine Corps) is truly the United States' mobilization service.

Accordingly, Fig. 7 shows the historical strength of the U.S. Army over time, measured by divisions, by type of unit. We see quite clearly the expansions and deflations in posture occasioned by the Korean and Vietnam Wars, and by the Berlin and Cuba emergencies and recent Reagan administration peacetime buildup. Figure 7 shows the number of active divisions on the rolls as of the middle of each calendar year shown. Figure 7 also shows certain non-combat capable units prior to 1965, that is, active divisions in the business of training personnel, mobilized National Guard divisions not yet deemed ready for combat, and so on. The shaded areas refer to G&R divisions mobilized for some particular short-term purpose. "Heavy" divisions--most appropriate to NATO requirements--include armored and mechanized infantry divisions. "Light divisions" are other types (infantry, light infantry, airborne, air assault, motorized, and air mobile).<sup>35</sup>

Thus, we see the Army grow from a post-World War II nadir of 10-11 divisions (many languishing in conditions of significant unreadiness), to a posture of 20 divisions during and immediately following the Korean War, after which a decline to 14 active divisions occurs. We see an expansion in posture during the Berlin crisis, when two new active heavy divisions were constituted, and two National Guard divisions (one infantry and one armored) were called to active duty, and then the Vietnam related buildup. Following the Vietnam War, the number of Army divisions plunged to 13 during the early 1970s. A rebuilding program expanded this posture to 16 divisions (although several of these relied on "round-out" brigades and other units from the Guard and Reserve). This 16-division force was consolidated to a substantial degree later in

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<sup>35</sup>Note that some of these active divisions--particularly early on--were not necessarily very combat ready. Moreover, the degree of reliance on augmentation from the reserves is not indicated.

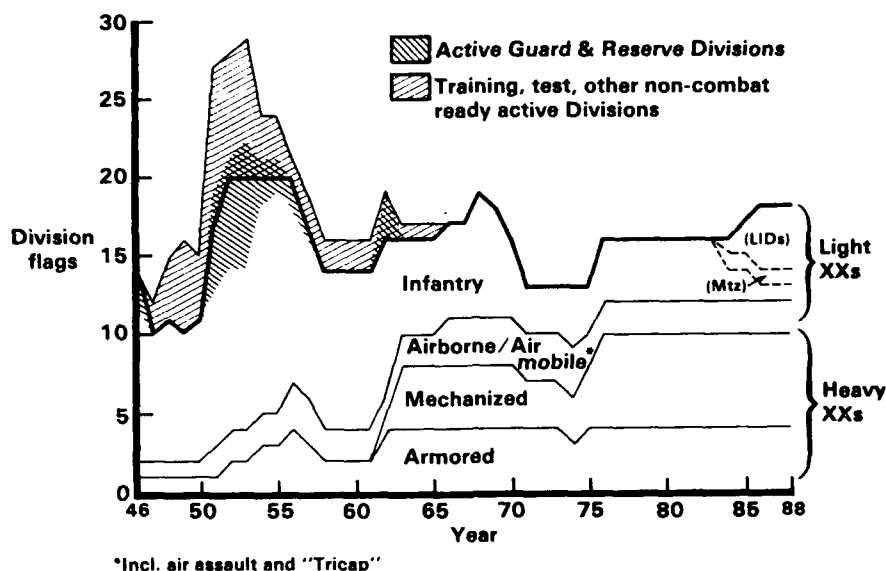


Fig. 7--U.S. Army Active Division Structure, by Type, 1946-88

the 1970s. Most recently, the posture has expanded to 18 active divisions, although these were created without the addition of commensurate new personnel.<sup>36</sup>

We see also the declining utilization of Guard and Reserve major formations in contingencies. Eight Army National Guard divisions, for instance, were Federalized to meet the dual requirements of the Korean War and the expansion of U.S. force structure in NATO from one to five divisions after the establishment of that alliance in 1949. Two

<sup>36</sup>Consistent with earlier remarks about the growing efficiency with which DoD has used its military personnel, we can trace the so-called "division slice" over time. Thus, an active division (depending on type, time, and organization) might have from 12-18,000 personnel assigned to it. But if we divide up world-wide Army personnel by numbers of divisions, we see that this ratio has changed from a figure in the 70-80,000 range at the time of Korea; to 55-57,000 in the rest of the 1950s; to 61-63,000 in the 1960s prior to Vietnam; to 83-86,000 during Vietnam; to a level of 43-50,000 since the mid-1970s (with the new light infantry divisions, the world-wide division slice is at a peacetime historical low point).

divisions were called up at the time of the Berlin crisis. After that, no entire division was ever called up--at the time of Vietnam, the JCS made such a request to President Johnson, but he rejected the idea, fearing the popular reactions to this move would undermine support for that conflict.<sup>37</sup>

Also apparent is the changing mix of division types over time. Prior to the 1960s, the Army consisted almost completely of light divisions--"straight leg" infantry and airborne forces (in addition, since both Korea and Vietnam were primarily infantry wars, the buildups in response to those contingencies were almost exclusively in this area). With the steady growth in the importance of the NATO contingency, and a better understanding of probable Soviet strategy for a NATO-Warsaw Pact war, the number of heavy divisions (armored and mechanized infantry) grew considerably. Indeed, the Army became a mostly heavy force just after the end of the peak Vietnam years, and has remained so to this day.<sup>38</sup>

We also see considerable experimentation in division types over time (though many of the details are not clear from this Figure). After 1960, for instance, the concept of air mobility was first tested (with the 11th Airborne Division, which was not combat-capable, though it provided many trained personnel to the 101st Air Assault and 1st Cav divisions deployed early on to Vietnam). Most recently, we see a proliferation in the types of light infantry divisions (both strictly light infantry, though one of these is counted as a mountain division and another is optimized with Alaskan requirements in mind, and also the 9th Infantry, Motorized).<sup>39</sup>

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<sup>37</sup>Two National Guard brigades were, however, called up during 1968 and 1969, but the rationale for this was mainly to respond to the *Pueblo* crisis (and to rehabilitate a jeopardized Army strategic reserve posture).

<sup>38</sup>The most recent major contingency for which the Army has prepared--one in Southwest Asia--has also placed a premium on mechanized forces.

<sup>39</sup>An impressive number of reorganizations and force structure experiments have taken place over time. These include the so-called "Pentomic division" of the mid- and late 1950s, the air mobile/air assault concept, and the more recent light infantry divisions and motorized, high technology division test-bed. One division--the 1st

The division, of course, is the basic major unit of Army force structure. Not shown in this portrayal are many types of other ground combat formation (including separate brigades, special forces and ranger units, etc.), along with many different kinds of aviation, missile, air defense, artillery, and other units. To give a better feel for the overall size and structure of the Army (including major non-divisional combat units), and also to show the relative emphasis of different regional priorities, Fig. 8 shows the Army posture--by deployed theater--including certain non-divisional combat units. Units shown are active division equivalents, that is to say, separate brigades and regimental formations are included in the deployed total. Moreover, when a brigade-sized unit has been removed from its parent unit (for forward positioning, e.g., in NATO, or independent combat operations, e.g., in Vietnam), that regional theater is credited and the U.S. reserve slice is debited accordingly. Finally, active homeland-based units are also docked by the appropriate number of brigades in those cases where there is reliance on National Guard and Reserve elements for round-out forces of at least a brigade's size.<sup>40</sup>

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Cavalry--changed in structure four times in about one decade, from basically an infantry division (while it was in Korea), to an air assault division (in Vietnam), to an experimental, helicopter-intensive "Tricap" division in the early 1970s, and finally to a NATO-oriented, fully armored division structure after 1974.

<sup>40</sup>The sub-divisional units shown represent a number of changing definitions over time. Prior to the mid-1950s, the main non-divisional units were so-called Regimental Combat Teams, that is, a regiment (usually infantry), plus various supporting elements. The unwieldy and short-lived Pentomic organization introduced the idea of "battle groups" (there being five of these to a division, with neither brigades or regiments, battalions, existing *per se*). After the abandonment of this concept, most separate units were redesignated as brigades under the reorganized "ROAD" division concept. Throughout this period, there have been a number of armored and, more recently, one air cavalry regiment in the active force structure. I have also included in Fig. 8 the new 75th Ranger Regiment, but no Special Forces groups. The regional categories are logical. Note that "U.S. and Western Hemisphere" includes forces stationed or deployed in the continental United States, Alaska and Hawaii (Hawaiian forces are ordinarily not counted as FORSCOM units, but rather WESTCOM units, but I count them here as U.S.-based ones), the Canal Zone, Puerto Rico, the Dominican Republic, and so on. The Far East geographic category includes forces in Korea, Vietnam, Okinawa, the Philippines, and Japan. The Europe category includes units in NATO

Figure 8 provides a number of interesting insights on Army priorities and responsibilities over time. Most of all, we see the enduring importance of the forward NATO deployment over time. This force has fluctuated only modestly from year to year: it reflects the centrality of this contingency in U.S. contingency planning. Conversely, we see the often dramatic fluctuation in U.S. deployments in the Far East over the years. From an initial force of about five divisions in Korea and Japan, this number declined modestly by 1950: however, divisions in Korea were withdrawn to Japan, and this has been cited by many as one factor inspiring the North Korean invasion of the South in June 1950. Following the end of the War, the United States maintained a three-plus division force in Northeast Asia until 1957, after which one division was withdrawn from Japan. After the announcement of the Guam Doctrine in 1969, one of the two infantry divisions in the Eighth Army in Korea was removed.<sup>41</sup> Thus, following the combined effects of the Vietnam War drawdown and the removal of forces from Korea, the Far East represented only a modest slice of total U.S. deployed forces over time.

What remains, with certain exceptions, can generally be considered the U.S. homeland based strategic reserve force.<sup>42</sup> Many of the divisions in that reserve have, of course, been more or less earmarked for certain

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(and, early on, in Austria). Note that Fig. 8 must include certain estimations of strength, to accommodate changing definitions of units, planning and organizational principles, varying terminology, and widely varying philosophies about the strength of units over time. For instance, earlier in this historical view, many units were chronically understrength, and would have required absorption of independent combat formations to achieve anything like a full combat-ready strength. This practice of selective hollowization has been followed at other times, of course. The consequence is that it is difficult to convey a truly accurate picture of what units are really effective to any given degree. Since the late 1970s, however, it has been Army policy that active units should be maintained at as close to a full level of peacetime readiness as possible.

<sup>41</sup>As mentioned *supra*, an effort by President Carter to remove the last Korean division in 1977 met with failure.

<sup>42</sup>Some Western Hemisphere units were however actually deployed. For example, much of the 82nd Airborne Division to the Dominican Republic in 1965.

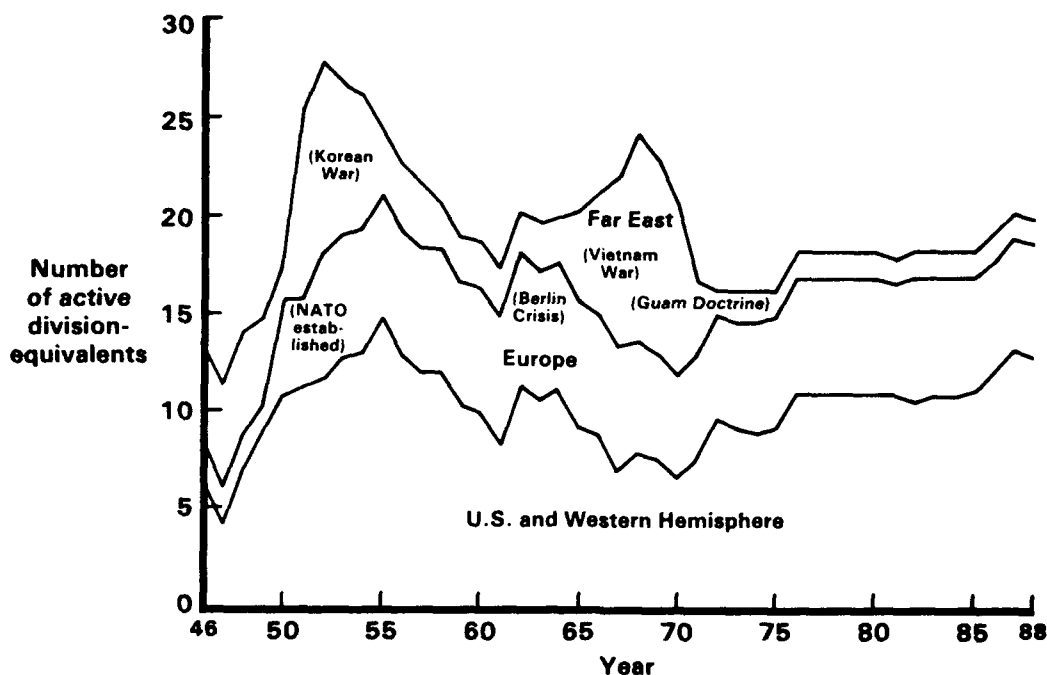


Fig. 8--U.S. Army, Active Strength by Region, 1946-88

contingencies, particularly NATO. Indeed, there are currently brigades of two U.S.-based units forward deployed in Germany, and there are prepositioned stocks for six U.S.-based divisions located in Western Europe. For the most part, it has been supposed that most, if not all, of the heavy forces would be dedicated to NATO (or, under certain circumstances, to Southwest Asia). In contrast, the lighter parts of the U.S. posture have been in some ways more strategically flexible over time. Indeed, part of the rationale for creating the so-called light infantry division structure in 1984 was to make U.S. infantry units more deployable.

#### Major Army Guard and Reserve Units

U.S. Army Guard and Reserve forces are not shown separately in either Figure 7 or 8. This is chiefly because of the dramatically different philosophies about the roles of such forces, their readiness, and so on, prevailing over time. (Table 4 shows some snap-shot views of selected major Guard and Reserve combat formations since the end of World War II.)

Table 4

SELECTED MAJOR ARMY NATIONAL GUARD AND RESERVE FORMATIONS  
(EXCLUDING FORCES ON ACTIVE DUTY)

	1947	1952	1957	1962	1967	1972	1977	1982	1987
Army Reserve:									
Divisions	19	27	10	10	0	0	0	0	0
Sep Brigades	-	-	-	-	4	3	3	3	2
Army National Guard:									
Divisions	26	21	27	27	23	8	8	8	10
Armrd Cav Regts	-	6	7	7	7	4	4	4	4
Sep Brigades	-	4	8	8	7	18	17	18	14
"Nominal" Posture:									
Divisions	45	48	37	37	23	8	8	8	10
Sep Bde/Regts	-	10	15	15	18	25	24	26	20
Division-Equivs	10	11	12	13	12	14	15	16	17

"Nominal" here refers to the fact that many of the divisional formations especially in the earlier years, did not represent any realistic sort of "in hand" combat capability. During the mobilization of ARNG divisions for Korea, it took some 15 months to move forces from activation to a state of even then possibly dubious combat readiness. The role of National Guard and Reserve units has, historically, been highly controversial and heavily politicized. For a discussion of both the history of these enterprises and their current organization, see M. Binkin and W. W. Kaufmann, *U.S. Army Guard and Reserve: Rhetoric, Realities, Risks*, the Brookings Institution, Washington DC, 1989. In this Table, I have excluded Army Reserve training divisions. The growth in the number of separate brigades generally reflects the redefinition of divisions as such. The recent decline in these units reflects their absorption in the two new National Guard divisions. Division-Equivs data are author's estimates.

As Table 4 shows, earlier in the historical period surveyed, the United States maintained an astonishing number of Guard and Reserve divisions (as many as 50 or more divisions). However, not many of these could really be considered appropriate for anything other than a World War II-style mobilization scenario. Nonetheless, because of the dire state of the active posture at the time of the Korean War, some eight National Guard divisions and numerous smaller units were Federalized.

In the mid 1950s, a basic reweighting of missions was undertaken, with the National Guard becoming the primary repository of combat divisions, and the Army Reserve being realigned more to provide smaller units and trained individuals to existing units. Some 13 Reserve divisions were formally designated as training divisions then.

Subsequently, and after much political controversy, the Army Reserve was stripped completely of its divisions. Analogously, recognizing readiness and equipment deficiencies, Army National Guard divisions were greatly reduced in number (many were reconfigured as separate brigades, and some of these were assigned round-out responsibilities beginning in the mid 1970s). The overall Guard and Reserve posture has remained relatively constant over time (although two new ARNG divisions were added in the mid 1980s, again without dramatic increases in the number of reservist personnel).

#### NAVY GENERAL PURPOSE FORCES OVER TIME

It is almost impossible to overemphasize the importance of World War II on Navy planning in subsequent years, from several points of view (intellectual, operational, posture concepts, etc.). The U.S. Navy emerged from World War II having a fully endorsed and verified posture of missions which have remained the core of Navy planning since then (including fleet operations of several kinds centering around carrier battle groups, escort of convoys to forward theaters, amphibious power projection, peacetime presence, land-based maritime surveillance, and so on).<sup>43</sup> From time to time, the Navy has been criticized for what some have called inordinate devotion to its historical antecedents, particularly given the continental nature of our post-war contingencies and the steady upward movement in the cost and complexity of the forces designed to accomplish the Navy's roster of missions.<sup>44</sup> But the fact is

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<sup>43</sup>Only the strategic deterrence mission is substantially new among the Navy's roster of roles and missions; and initially the Navy sought to perform this mission in what might be called a traditional way--by carrier based bombers.

<sup>44</sup>For one leading case-in-point, see Robert W. Komer, *Maritime Strategy or Coalition Defense?* Abt Books, Cambridge MA, 1983.



that the U.S. Navy has remained a formidable force, second to none even at its lowest post-war points. The Navy has also (albeit with some lag times) responded flexibly to certain off-design scenarios.<sup>45</sup> Finally, the Navy remains strategically flexible, able to maintain forward deployments, but shift these as conditions require on short notice.

Driving these realities to a certain extent, and certainly dominating the Navy's posture planning over most of the post-World War II period was another legacy of that conflict: the considerable force-in-being remaining after 1945. Ships last a long time (from 20-25 years for submarines and minor surface combatants, to as long as half a century or more for modern, big deck carriers and battleships). Taking the average lifetime of all ships in the Fleet to be some 25-30 years, we immediately see how the obsolescence of that force after World War II coming in about 1970 (plus or minus five years) played a major role in the make-up of the U.S. Navy's force structure over the past forty years. Thus, at a very large level of aggregation, the key development in the Navy's posture over time has been the problem of balancing the phasing out of this legacy in posture with the introduction of new, balanced, and affordable modern force structure.

Figure 9 shows, at a high level of aggregation, the evolution of the Navy's posture over time. We see, first of all, the very large residual World War II force (much of which was returned to active service after the outbreak of the Korean War). Subsequently, we see the predicted decline in the Navy's posture at around the 1970 point, when the aging of World War II-vintage ships combined with the consequences of the resource diversion to the Vietnam War to shrink the Navy from a level of at least 800 ships down to one in the 500-600 ship range. We see, again within these very broad categories of forces, the relative primacy of warships (carriers, surface combatants, and submarines) as a replacement priority. The amphibious fleet declined from a level of more than 120 ships during the Vietnam War down to a level in the 1960s

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<sup>45</sup>Examples include the constitution of a brown water riverine and coastal maritime force during the Vietnam War, and the recent Persian Gulf deployments.

of ships, where it remained since that time. And we see the very substantial drawdown in "other ships," these including a broad range of capabilities, major and minor alike.<sup>46</sup> We see that after stabilizing, the entire fleet remains roughly the same over time in internal mix, although it has grown somewhat since 1980 (largely on account of the procurement of certain low-end ships, e.g., the *Perry* class FFG).

Figure 9 does not reflect the consequences of many individual and class modernization and rehabilitation programs (in lieu of new procurement), nor does it reveal certain transitory developments and emphases. Among these are: temporary booms in construction for pertinent amphibious and mine warfare vessels during mid-level

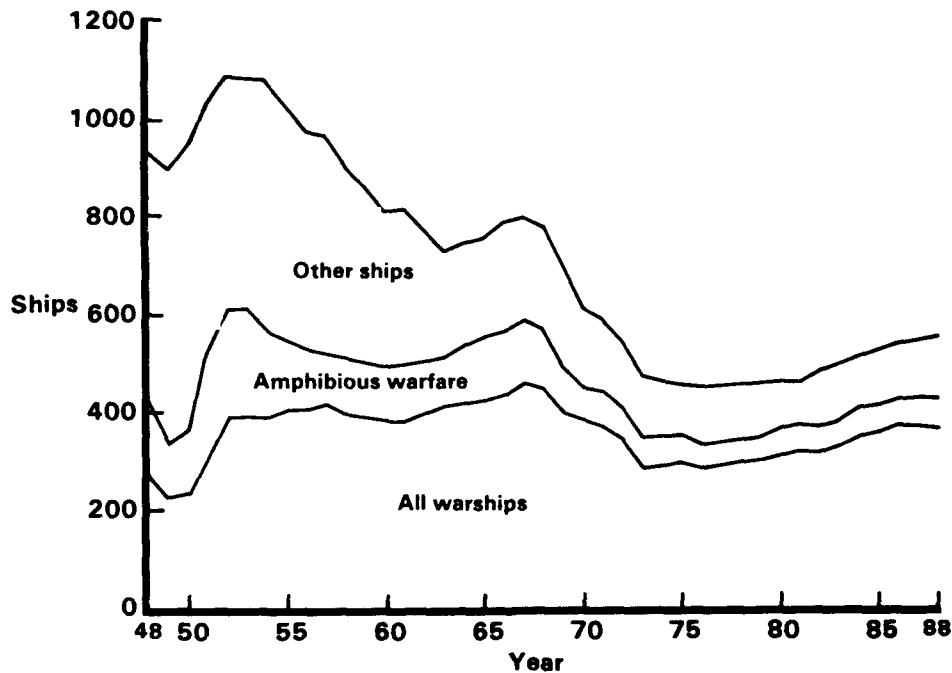


Fig. 9--USN Force Structure, 1948-88

<sup>46</sup>A number of "other ship" types--for instance, minesweepers--were retired and not replaced by other ships, but rather by capabilities of other kinds, e.g., helicopter-oriented anti-mine capabilities. A number of marginal support vessels was similarly put out to pasture. Many of the larger fleet support vessels in service today (e.g., tenders) actually date from World War II, and are therefore part of that posture legacy.

contingencies, the increasing capability of individual ships, the capabilities of Naval Reserve Forces, the increased automation of modern ships, and certain initiatives to move toward a more nuclearized Navy (which were abandoned, with the exceptions of submarines and carriers on account of their high costs). Nor does this Figure include the marginal but certainly not negligible contribution of the U.S. Coast Guard (whose assets would shift from Department of Transportation to U.S. Navy control in wartime), or certain other service contributions (e.g., some B-52s for sea surveillance and control).

Budgetary and other resource constraints (particularly manpower and O&M constraints) have combined with the Navy's overall strategic resume to virtually dictate a concept for steady-state posture maintenance that has been fairly constant for a decade and a half now. Indeed, contemplating the decline in the Fleet as the Vietnam War drew down, Navy planners in 1974 first conceived the notion of a steady-state 600 Ship Fleet. Though there have been some generally modest reconfigurations within this total fleet target, it has remained more or less the same since then.<sup>47</sup> Thus, the Navy's core fleet target has remained more or less 15 carrier battle groups (a carrier, with some 6-8 supporting combatants and a dedicated UNREP (under way replenishment) ship, the capability to escort some 7 convoys per month and 1-1.5 MEFs, 90-100 SSNs for a range of duties (maintenance of ASW barriers, offensive ASW operations, direct support of carrier groups, etc.), 600-650 SLBM tubes aboard 25-40 SSBNs, assorted other support ships (and escorts for them, as required), and various fleet-wide support capabilities (mine warfare, ocean surveillance, patrol, etc.).

Given cost data, life-cycle information, etc., it is fairly simple to compute the long-term replacement and maintenance requirements for such a force. Basically, the results one gets are that, at 1970s

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<sup>47</sup>For instance, the number of escorts per battle group has changed modestly, and the number of carriers has occasionally been adjusted. More radical proposals to change the way the Navy structures its posture--for instance, the substitution of small conventional carriers (and even through-deck cruisers) for big-deck, nuclear-powered carriers--have all met with failure.

spending levels, a force of around 500 ships is maintainable over the long haul. For early and mid 1980s spending levels, a force of 600 ships is probably possible. However, the Navy buildup, attempted under the Reagan administration, to a force of 600 "deployable" battle ships was essentially doomed to failure, because of the lack of staying power of the budget and because the Navy chose to emphasize a very costly set of ships in its 1980s construction plans. Today, the key issue is what level--probably somewhere between 525 and 575 ships--can be afforded and maintained over the long term, given assumptions about individual ships costs and so on.

Mindful of this, consider Figure 10, which provides a close-up view of the combatant slice of the overall USN force structure. This, of course, represents the majority of ships in the Fleet, it corresponds most directly to the Navy's ability to accomplish its missions, and it is the part of the posture that must be modernized on a routine basis.<sup>48</sup> Overlaid for reference is the size of that posture remaining from the so-called World War II legacy.<sup>49</sup> From this Figure we get a sense of what represents a balanced Navy force, and also of what shipbuilding programs have yielded in terms of current and capable force structure. Since the end of the residual World War II posture bust in 1975, we see that the Fleet has grown, on average, at a rate of about 7 warships per year.<sup>50</sup>

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<sup>48</sup>That is, technical requirements (particularly concerning submarines), maintenance burdens, and changing operational circumstances all demand the regular updating of this component of the force.

<sup>49</sup>Which has essentially disappeared after 1975, save for a couple of CVs and the recommissioned battleships.

<sup>50</sup>To maintain a steady-state 600 Ship fleet requires the construction (excluding SSBNs) of 1-3 CVs, 9 surface combatants, and 4-5 SSNs per year. For a 500 ship fleet, the figures are about 1-4 CVs, 8 surface combatants, and 4 SSNs per year. The difference is not much--about 1-1/2 combatant ships per year on average (presently, the difference would amount to about \$1.5 billion per year in SCN). But maintaining this force (or the non-warship parts of it) is not the problem, now or at any other time. The problem lies in building up to the force *in the face of serious existing block obsolescence problems*.

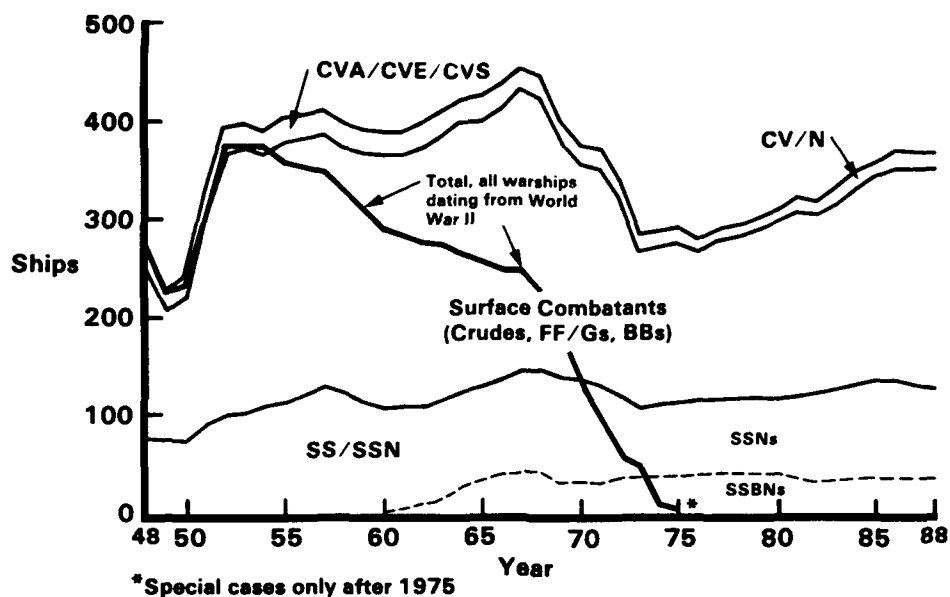


Fig. 10--Constitution of USN Combatant Fleet, 1948-88

However, within this trend, several factors are worth noting. These mainly involve unit costs (within the context of the so-called quality/quantity issue). One of the reason that the post-World War II posture actually showed a sustained growth rate is that a number of relatively low-end surface combatants (including some 130 frigates displacing an average of 3.7 thousand tons each) were bought between FY51 and FY84, at roughly an average price of some \$300 million each (in FY88\$). However, as the Navy rightly points out, these ships are not fully appropriate to all the rigors of blue-ocean carrier battle group operations. Hence, the Navy has, over the past eight years, stressed a much higher grade of warship (notably the *Ticonderoga* Class Aegis cruiser), and its plans for the 1990s similarly envision very capable but quite costly new submarines and destroyers (at perhaps \$1 billion a copy). Compared with historical SCN budget levels--even those of the 1980s, never mind those likely to prevail in the coming decade--it is uncertain what looms for the posture in the long term.

Accordingly, Table 5 indicates acquisition rates for Navy warships over three and a half decades. Using typical life-cycle data, we see that, on average, we have been buying roughly enough carriers, submarines, and surface combatants to nominally meet something more or less like the long-term sustainment requirements of the 600 ship fleet. However, two problems exist with this situation. First, as noted, the mix of high-end surface combatants has historically been inadequate given long-standing Navy posture objectives. Second, of the total of 395 ships (less carriers) acquired over these 35 years, 58 percent (227) were bought in the first 15 years of that period. This means that, taking into account force obsolescence, we would need to buy 8-10 submarines, and as many as 15 surface combatants a year, to maintain these historical buy rates. Clearly, this is unlikely: the alternatives would then seem to involve a return to a high-low mix, extension of the life of as many aging surface combatants as possible, and changes to current battle group planning standards.

Table 5

ACQUISITION OF NAVY GPF WARSHIPS, 1953-87,  
(DURING HALF-DECADE INTERVALS)

	1953-57	1958-62	1963-67	1968-72	1973-77	1978-82	1983-87	1953-87
CV/N	5	2	2	1	1	1	2	13
SSN	18*	17	31	17	19	8	17	127
CG/DDG+	11	20	1	4	1	11	18	66
DD	26	15	0	16	14	1	0	72
FF/G	14	11	54	0	18	30	3	130
Total	74	65	88	38	53	51	40	408
MEMO:								
(All Surf	51	46	55	20	33	42	21	268)
(% HiEnd	22	44	2	20	3	26	86	25)
*9 of these were conventionally powered							+Including CGN	

## USMC Capabilities

The U.S. Marine Corps, a component of the Navy Department, has an interesting post-World War II history. In 1945, the United States maintained six USMC divisions and a total Corps of 475,000 men. But after the war, many questioned the need for a land warfare force which some thought duplicated Army missions, and others suspected to be wedded to an operational concept (amphibious assault) not so likely to be required in the austere post-war setting. This matter was resolved in an interesting way. Proponents of the USMC inserted into the National Security Act of 1947 (actually, its 1952 amendment) a requirement that three active USMC division/wing teams be maintained.<sup>51</sup> In the early 1960s, the U.S. Marine Corps Reserve was reconfigured from a group of individual replacement personnel into a complete reserve division. With the exception of the peak Vietnam years (FY66-69, when the 5th Marine Division was reactivated), this posture of three active and one reserve division has remained constant. Because of Vietnam requirements, USMC personnel strength grew from an average, over 1962-65 of 190,000 men to an average, during 1966-70, of 285,000 men. After 1974, Marine manpower has not departed from the range of about 190,000-200,000 active personnel and about 35,000-45,000 or so reservists.

Over time, the USMC has responded to widely varying combat and other requirements. In Korea, one USMC division was deployed; at the time of the offshore Islands crises with China in 1958, a division was readied for deployment to Formosa; and at the height of the Vietnam War, two divisions and a separate USMC regiment were in Vietnam. The Marines were subsequently designated as a key component in the Rapid Deployment

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<sup>51</sup>A division/wing team was known as a Marine Expeditionary Force (MEF) until the time of the Vietnam War, when, to remove the connotation of an imperialist capability, the term Amphibious was substituted for Expeditionary. Recently, that terminology has reverted to its pre-Vietnam form. A Marine division is a fairly large infantry formation, while a Marine Wing is about twice the size of a USAF TFW. USMC wings contain a mix of combat aircraft of several types, and, as well, assets of other kinds--attack and transport helicopters, fixed wing transport aircraft, and so on. There are about 300 aircraft of all kinds in a modern USMC wing, of which about half are combat models.

Force, later called the CENTCOM contingent. As well, the expected utilization of the USMC has changed. For one thing, amphibious assault shipping has generally declined, so that only a fraction of all Marine Forces could be actually deployed against opposing forces. USMC force elements have also been assigned other new missions: for instance, equipment has been prepositioned in Norway for the deployment of a Marine brigade there in the event of a NATO-Warsaw Pact scenario.

### U.S. AIR FORCE THEATER FORCES OVER TIME

U.S. theater air forces have undergone a number of doctrinal and posture planning shifts over time. Originally, the role of USAF tactical combat forces was to support the larger U.S. nuclear strategy and only secondarily to provide traditional, direct support to ground forces. Thus, the emphases of force design in the 1950s were long-range nuclear-strike aircraft (such as the F-105), and various interceptor forces (suited to continental and/or theater air defense as the case may be). However, with changing U.S. strategy, the lessons of the Vietnam War, and many other factors, the TAF planning framework changed dramatically during the 1950s. (See Figure 11 for an historical profile of the constitution of the USAF TAF over time.)

Initially, the USAF responded to requirements by the acquisition of Navy aircraft models not oriented so much to the types of nuclear-related missions for which the USAF prepared in the 1950s (the F-4 and A-7). Subsequently, the USAF acquired in the 1970s its first true generation of theater-warfare aircraft: the F-15 air superiority fighter, the lower-cost F-16 multi-role aircraft, and the very inexpensive A-10 close air support airplane. This modernization process considerably improved U.S. Air Force capabilities for conventional warfare, particularly in NATO.

In the late 1970s and early 1980s, new aircraft programs were launched to replace the posture acquired in the 1960s and 1970s. The F-16 continues to replace the F-4 (and has also been selected as a follow-on to the F-4 for homeland air defense, tactical reconnaissance, and defense suppression; the F-16 may also be configured for near-in



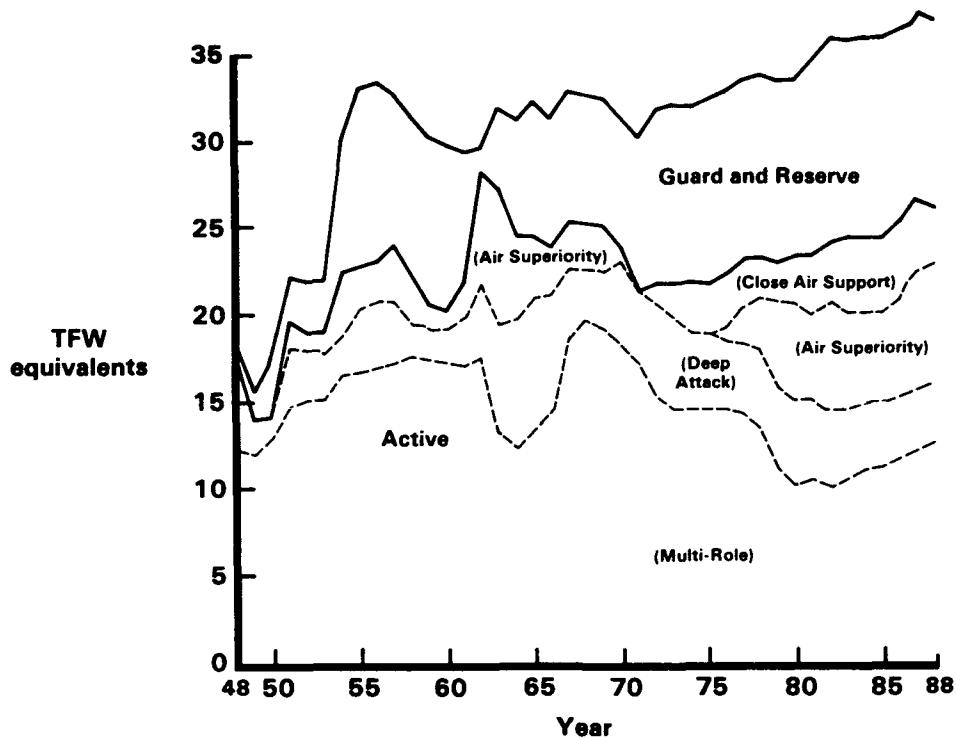


Fig. 11--U.S. Tactical Air Force Posture, 1948-88

ground attack). An Advanced Tactical Fighter program was begun to replace the F-15. The F-111 aircraft continues to be a viable platform (indeed, the force of F-111s will be augmented by the transfer from SAC of FB-111A aircraft), but a redesigned F-15E is being bought to enhance U.S. deep attack capabilities. And some new specialized platforms (for instance, the F-117 stealth fighter) have also been recently revealed.

Tactical aircraft represent one area of U.S. planning in which cost considerations have motivated many posture decisions. In particular, the operational context for tactical air operations has changed substantially over time: aircraft must do more, against a greater threat, operate in more demanding environments, etc. Consequently, the costs of a given unit of posture have tended to grow over time, with the net result that follow-on generations of aircraft can--unless deliberate steps are taken to prevent this result--cost twice what their predecessors did. This cost escalation places predictable pressure on the USAF when it comes to the maintenance of a constant end-strength. Such pressures explain why the USAF was unable to expand its posture

from a level of 36 active and reserve wings to goals of either 40 or 44 TFW in the 1980s.<sup>52</sup>

Various techniques, exploited with considerable success, to suppress the phenomenon of end-strength have included: placing more emphasis on Guard and Reserve forces; the acquisition of a so-called high-low mix of aircraft; maintenance of aircraft in the posture for longer periods of time; modification of existing aircraft and designs in lieu of new procurement; equipping of aircraft with more capable weapons and other systems; and the acquisition of certain lower-cost specialized aircraft (such as the A-10). Even so, the maintenance of a fixed posture has become steadily more difficult over time. That has placed a burden not only on the USAF, but also on other posture elements that might compete with TAFs for resources. Table 6 provides a basis for determining the compatibility of posture objectives and acquisition histories over time, just as Table 5 did for ships.

As with the Navy SCN program, the data in Table 6 can be manipulated to reveal several different conclusions of interest. Most significant of all results, of course, is the steady downward tendency in buy rates over time. This reflects increasing unit costs of aircraft, their individual superiority in capability, their longer expected service lives, the utility of programs to upgrade older aircraft in lieu of new procurement, etc. Second, we can examine relative mission priorities over time. Clearly, the decline in air superiority resources after the 1950s is evident, as is that of deep attack (after the waning of Massive Retaliation and then Vietnam). We see the rise in close air support capabilities as external circumstances (Vietnam and, later, NATO rearmament) require. Most important of all is the anchor role played in the posture by multi-role aircraft.

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<sup>52</sup>The new target is said to be 35 TFW. Note that there is an old rule of thumb that defines the proper relationship between USAF tactical forces and Army ground forces. This is that there should be about 5 USAF TFW (that is, 1-2/3 TFW) per active division. For an early 1980s Army of 16 active divisions, the total TAF requirement would be--consistent with contemporary posture--about 26-27 active TFW. For an active and reserve Army posture of 24 divisions, this meant a posture target of 40 TFW.

Table 6

ACQUISITION OF USAF TACTICAL AIRCRAFT, 1953-87,  
(DURING HALF-DECADE INTERVALS)

	1953-57	1958-62	1963-67	1968-72	1973-77	1978-82	1983-87	1953-87
Air Superiority:#								
1925	210	0	0	380	313	201	3029	
Deep Attack:@								
77	646	280	262	24	0	0	1289	
Multi-Role:+								
4364	29	1575	450	72	725	764	7979	
Close Support:&								
0	0	62	653	247	542	0	1504	
Total:	6366	885	1917	1365	723	1580	965	13801

#Includes dedicated strategic air defense interceptors. Includes F-101, F-102, F-104, F-106, F-15, except F-15E (deep attack variant). F-15 to be replaced by Advanced Tactical Fighter.

@F-105 and F-111, excluding FB-111A.

+Includes F-84/86/89, F-100, F-4, F-16 (advanced versions of the F-16 are still in production).

&A-7, A-37, and A-10.

Of greatest interest for the future are more recent buy-rates. To maintain a TFW over a nominal twenty year period requires us to purchase about 130 aircraft in total.<sup>53</sup> Thus, to maintain a posture of 36 TFW requires us to buy 234 aircraft a year; to maintain 40 TFW (the Reagan objective for a time) requires a 260 airplane per year buy. We see that, over the period 1968-87, we were buying, on average, enough airplanes to just maintain a 36 TFW force. Ironically, during the time that the higher posture target existed (the early 1980s), we bought relatively few airplanes (193 on average between 1983-87, not even

<sup>53</sup>This is a standard planning factor that includes allowances for pipeline aircraft, test ships, attrition, etc. Note that some aircraft--the F-111 and F-106 are two noteworthy cases in point--have or had service lives considerably longer than twenty years.

enough to maintain a 30 TFW force). As with Navy construction, this is a consequence of the relative emphasis on high end systems.<sup>54</sup> Again, unless we change our design philosophy considerably (and this is not now in the offing), we should expect our ultimate TAF posture to be more in the lower 30 TFW range than in the higher 30 TFWs.

## U.S. STRATEGIC NUCLEAR FORCES OVER TIME

As the discussion particularly in Chapter IV noted, the U.S. strategic posture has been through a number of dramatic changes over time. In the 1950s, the United States relied, among other things, on the expedient of Massive Retaliation to contain the global communist threat<sup>55</sup>: it was felt then that nuclear forces represented an area in which the United States could prevail by virtue of its technological superiority,<sup>56</sup> could support its various defense obligations at a relatively low price, and could prevent the outbreak of unpleasant and unpopular mid-level contingencies (such as Korea), among other things.

Budget trends indisputably show the importance accorded strategic nuclear forces in the 1950s, and the MFP I budget after 1961 shows the lower priority accorded these forces. The declining budget primarily reflects two things. First, it reveals not necessarily a reduction in emphasis on U.S. offensive priorities--indeed, by many important operational indicators, the U.S. posture of the late 1960s was operationally more effective than that of the late 1950s. However, by virtue of substituting relatively more efficient posture (for instance,

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<sup>54</sup>It also reflects certain anomalous effects, for instance, much classified program spending and so on, but the general point nonetheless remains valid.

<sup>55</sup>However, the commonly heard argument that nuclear forces entirely dominated U.S. strategy even at the height of the era of Massive Retaliation is probably a great overstatement, in this author's view. Other factors strongly influencing U.S. planning in the 1950s--perhaps on a par with that of nuclear reliance--were certain carry-over doctrinal, posture, and other legacies of World War II, and, to a significant degree, simply a less than adequate planning process.

<sup>56</sup>In this respect, such reliance was not unlike, in principle anyway, the recently espoused concept of "competitive strategies." See Commission on Long-Term Strategy, *Discriminate Deterrence*, U.S. Department of Defense, January 1988.

missiles, and fractionated bombers and missiles) for the bomber-heavy posture of the 1950s, and following steps to make strategic planning more coherent, the total costs of maintaining a given level of absolute strategic capability declined dramatically. Second, the declining strategic budget levels of the 1960s and 1970s reveal the greatly diminished priorities accorded to various strategic defensive functions.<sup>57</sup>

An increase in spending in the 1980s reflects no really substantial departure from the strategic concepts of the preceding two decades (save, perhaps, for a greater emphasis on certain command and control capabilities), but rather, the acquisition of a highly diverse and more costly offensive Triad to replace that bought in the late 1950s and early 1960s. The increased costs of these follow-on systems is due to their greater sophistication and capability (they are, after all, designed for a more demanding set of strategic missions and challenges), the rapid pace at which this modernization effort was undertaken (the aim being to close an alleged "window of strategic vulnerability"), the redundant nature of this modernization effort,<sup>58</sup> and certain other factors.

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<sup>57</sup>The majority of this posture reconfiguration began during the early 1960s. In order to hold down the costs of the strategic posture, McNamara, following upon some initial efforts in the final years of the Eisenhower administration, oversaw the retirement of some 1500 bombers (mainly medium-range B-47s and B-58s), and replaced these with 1656 new strategic missile launchers (1000 Minuteman and 656 Polaris missiles aboard submarines). To further free up funds for conventional forces, McNamara also cancelled or otherwise cut substantially a number of proposed strategic offensive weapons, including the B-70, the Thor and Jupiter IRBMs, the Snark cruise missile, more Titans, the Skybolt ALBM, and more. Silo-basing was endorsed for Minuteman (as opposed to more expensive arrangements like train or aerial basing). Strategic defensive capabilities, moreover, declined from a force that included almost 1800 aircraft (half of them active) in the early 1960s to a total of about 1200 in FY69 (less than half of them active).

<sup>58</sup>Compared with previous epochs, for instance, the United States maintained programs to develop two bombers, two ICBMs (with various basing mode options), two air-launched cruise missiles, and so on.

## U.S. Strategic Offensive Forces

After World War II, the United States really had no coherent plan for the acquisition of a large and balanced nuclear arsenal. Following the shocks of the Korean War and Soviet acquisition of the A-bomb, the establishment of NATO, and other developments, the United States embarked on a broad and costly program to acquire and deploy a large offensive force. For the most part, the materialization of this force reflected what was technologically possible: medium-range bombers were a first posture priority, followed by an air-refuelable long-range bomber force, and then various missile programs. Figure 12 shows the evolution of this force over time. We see clearly the emphasis on the medium- and long-range bomber forces of SAC through the 1950s, although other force elements (a motley array of Navy carrier-based attack bombers, USAF theater aircraft, cruise and ballistic missiles of all three services, etc.) were certainly minor constituents of the overall U.S. nuclear offensive posture during this period.

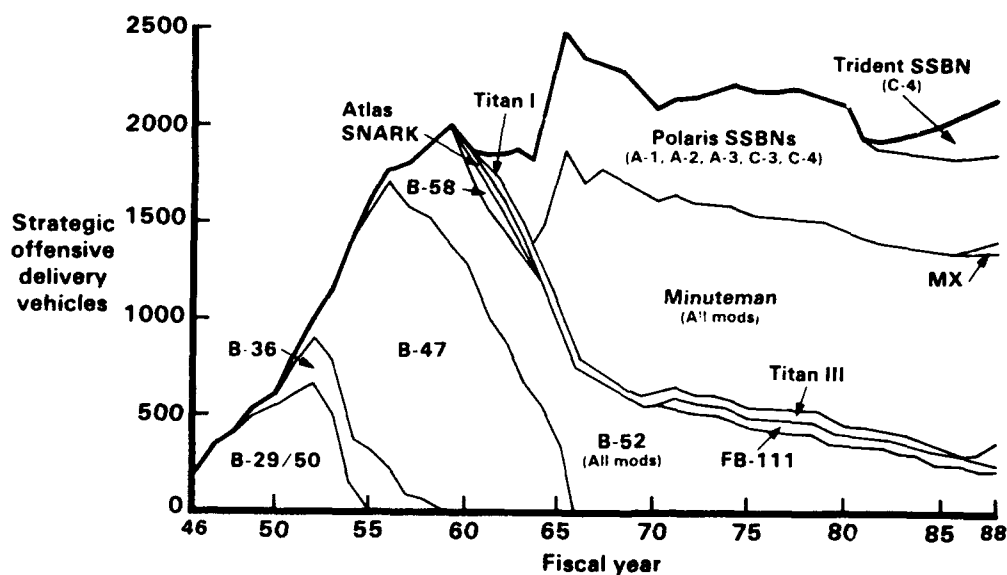


Fig. 12--U.S. Strategic Offensive Forces, 1946-88

When he became Secretary of Defense, Robert McNamara cancelled and restructured an array of duplicative, costly, and other offensive programs, and basically configured the Triad which has remained a centerpiece of U.S. offensive posture planning to this date. McNamara's posture basically consisted of 1000 silo-based Minuteman ICBMs; 656 submarine-based SLBMs; and some 250 later-model B-52G/H model bombers. To hold down costs, McNamara relied on certain planning conventions (e.g., the "Assured Destruction" force-sizing concept which has been erroneously construed as actual U.S. targeting policy), and modernization in lieu of new weapon platforms. Thus, as the nature of the threat, operational environment, and target base changed, programs were upgraded, but not replaced by follow-ons. Missiles were MIRVed, bombers were rebuilt and prepared for new operational tactics, accuracy and reliability were increased, and so on.

Because of the general funding down-turn of the 1970s, acquisition of a Triad to replace this one (MX, Trident, and the B-1A) was deferred repeatedly. Indeed, had original (early 1970s) plans stayed on track, by around 1984, the United States would have acquired some 100 MX, 200+ B-1As, and a dozen Trident submarines. As it was, no MX was bought by that date, only a few prototype B-1As were in hand, and the Trident force at that time consisted of 5 submarines. Figure 13 shows the modernization of the Triad over the period FY57-88. We see the interesting property of highly cyclical replacement.<sup>59</sup> This was not the result of any original road-map, of course, but on account of budget constraints.

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<sup>59</sup>That is to say, and with certain qualifications, the entire Triad seems to be replaced during a period of fairly intensive activity at quarter century intervals. This certainly was not the intention of planners, who, as noted, envisioned a more orderly modernization process. The more recent modernization period looks less impressive, in some sense, than its predecessor, but taking into account the increased weapons carriage of these more fractionated systems, the net effect for on-line warheads is at least as impressive in each leg of the Triad. Of course, present plans envision the continuation of this procurement initiative (to include the acquisition of, perhaps, several hundred small mobile ICBMs and as many as 132 B-2 Stealth bombers in total). However, the fate of this continuing effort remains to be seen. Recent budget woes have cast it into some doubt.

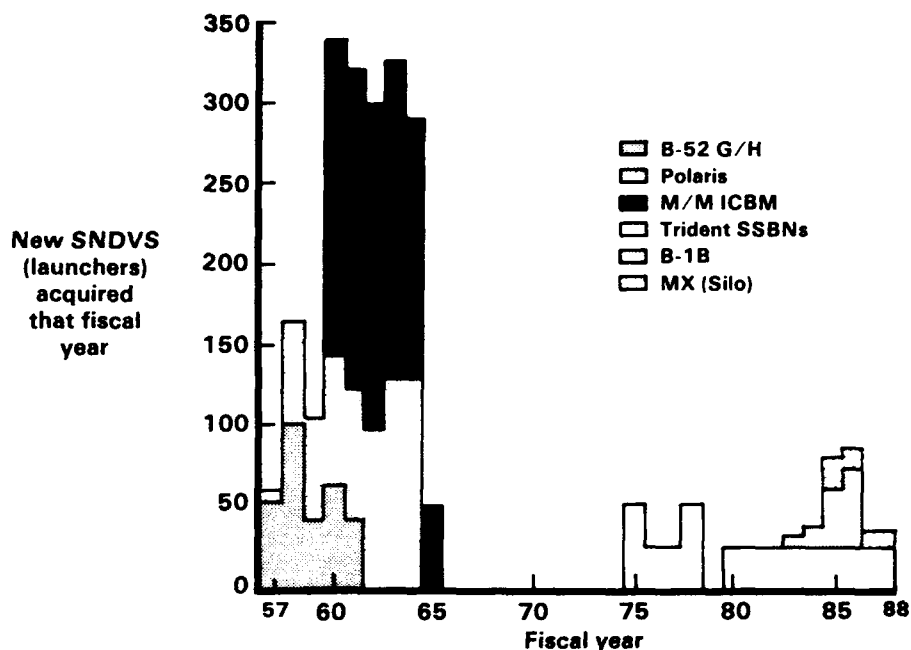


Fig. 13--Characteristic Modernization of the Triad in Cycles

Anxious about a "window of vulnerability," the Reagan administration ordered many programs into procurement. One hundred significantly redesigned B-1B aircraft were bought, some 50 MX were deployed (albeit in MINUTEMAN silos), and various other improvements were ordered. Yet another set of follow-ons--the stealth bomber and small ICBM among them--are currently nearing some kind of procurement choice. However, the budgetary environment of the early 1990s, combined with unanticipated progress in offensive arms limitation, raises serious questions about the viability of some of these programs.

### U.S. Strategic Defensive Forces

Similarly, U.S. strategic defensive capabilities have evolved considerably in form and role over time. In the 1950s, when the threat to the United States consisted of Soviet bombers and cruise missiles, the United States maintained a large anti-aircraft defense system, consisting of fighters, SAMs, and an array of ground-based radars and battle management sites. Such active defenses were backed up with a



comprehensive civil defense program. With the emergence of a Soviet intercontinental missile threat, however, defending against bombers alone made relatively little sense. Given the technical problems of intercepting missiles, the changing strategic context for U.S. planning (including, for instance, the adoption of an Assured Destruction or Assured Retaliation force to deter enemy attacks against U.S. cities), competing financial priorities, the apparent role of arms control in removing certain threats, changing threat dimensions, and many other factors, the U.S. homeland defense effort was substantially downgraded in the early 1960s, as Fig. 14 shows.<sup>60</sup>

This pattern of decline continued through the 1960s. By 1969, with the attainment of the ABM Treaty, U.S. force levels had fallen substantially, more and more capabilities had been transferred to the reserves, and some force elements (SAMs, civil defenses, etc.) had been more or less given up completely.<sup>61</sup> Strategically, the role of strategic defenses had evolved from defense in a classic sense, to denial, and finally, by the mid 1970s, to a nebulous set of attack characterization and airspace control responsibilities.

Beginning in the late 1970s and early 1980s, some efforts were made to reinvigorate U.S. homeland defense posture, and in March 1983, President Reagan called for the development of the Strategic Defense Initiative. But despite the new interest in these waning capabilities,

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<sup>60</sup>Figure 14 shows only normal USAF interceptor and Army SAM commitments. Other force elements could be shown (radars, strategic ASW, etc.), and in some scenarios various augmentation options to enhance the posture shown in this Figure might occur. Between FY55 and FY63, strategic defense spending exceeded \$42 billion, a cost comparable with any of the major offensive modernization initiatives carried out over the course of about the same number of years (for instance, the Polaris system). But a downward trend in the relative priority and role of U.S. strategic defense forces continued after FY61 for two decades. Leaving aside investment in Safeguard, the trend is almost monotonically negative, from SDF spending on the order of \$6 to \$7.5 billion in the very early 1960s to a steady nadir of roughly \$2 billion by the middle and late 1970s, after which a small increase took place.

<sup>61</sup>Moreover, after the early 1960s, no provisions at all were made for any new dedicated interceptor aircraft--forces for air defense would be drawn from forces designed for theater warfare purposes.

relatively little in the way of concrete force enhancements occurred. This is apparent, also, from Fig. 14.

### U.S. STRATEGIC MOBILITY FORCES OVER TIME

U.S. strategic mobility forces have evolved considerably over time. Strategic mobility has always been, if only in principle, a central component of U.S. strategy since serious theater rearmament efforts began in around 1950. This is an inevitable consequence of the location of key U.S. interests along the periphery of the Sino-Soviet bloc, an historical quantitative insufficiency in U.S. posture over time (which obviously prohibits stationing of full force complements in all areas of interest<sup>62</sup>), the costs of forward deployments, and, in some cases, a lack of access to local bases. These problems compel us to explore a range of strategic mobility options.

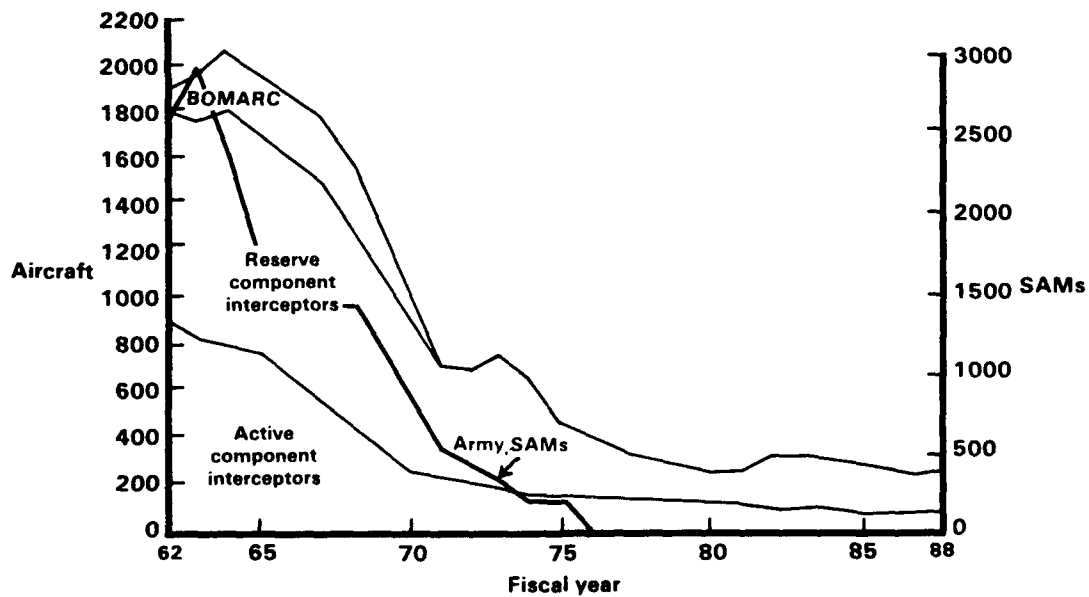


Fig. 14--U.S. Strategic Defensive Forces, FY62-88

<sup>62</sup>Consequently, the United States has embraced the concept of "strategic flexibility," wherein a central U.S. reserve could be committed overseas as the conditions of a contingency required. In effect, this concept of flexibility makes a virtue of a necessity

There are three generic components of a strategic mobility posture: airlift, sealift, and prepositioning. Airlift forces can consist of dedicated USAF strategic lift assets, as well as civil airliners which could be mobilized for the carriage of both equipment and personnel (U.S. civil aircraft can join the CRAF--Civil Reserve Air Fleet-program for this purpose). Sealift consists of dedicated cargo and civilian merchant-type shipping. Prepositioning can be of two major types: prepositioning on land (typically in hardened depots, a concept known as POMCUS, for "prepositioning of overseas materiel configured to unit sets"), and prepositioning at sea (a concept generally known as MPS, for Maritime Prepositioning Ships). Each form of prepositioning has relative advantages: land-based depots are relatively closer to possible front-lines and may be less vulnerable to attack and disruption of intratheater mobility systems, whereas maritime prepositioning is not by definition tied to particular locations.<sup>63</sup>

A satisfactory strategic mobility posture depends on the proper balancing of these components, plus certain other logistical, cost, infrastructure, intratheater mobility, and related issues. Airlift, particularly when supported by aerial refueling, is able to move posture relatively quickly to trouble spots. However, airlift is expensive, is not necessarily a very good way of moving heavy forces, depends on availability of bases, overflight privileges, aerial refueling resources, etc., and so on. Sealift is necessary for delivering the majority of the tonnage that would go to a certain theater (in Vietnam, for instance, more than 96 percent of all tonnage went by sea). However, sealift also is vulnerable to SLOC interdiction and port

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(chiefly, lack of in-hand, active U.S. posture). In practice, strategic flexibility (and, as important operational flexibility--the ability of standard posture to engage in possibly diverse kinds of contingencies) has been hard to achieve. Strategic mobility--the ability to deploy elements of this reserve in a timely and effective way--is not the only prerequisite of this strategic flexibility concept, of course.

<sup>63</sup>In addition, strategic mobility capabilities as a class can include certain capabilities for the rapid and possibly opposed delivery of combat forces (e.g., airborne troop drops, or amphibious combat shipping). Moreover, some parts of the U.S. posture can self-deploy (including tactical fighters and even some kinds of helicopters).

denial; sealift is also appreciably slower than airlift, and may deliver materiel to ports quite a bit removed from front lines. Prepositioning avoids certain problems attached to either air and sea-lift: the United States has an essentially unlimited capacity for moving personnel to a location, and if their equipment awaits them there, rapid deployment is possible. But both kinds of prepositioning bring with them their own unique political and vulnerability problems. Prepositioning also ties up equipment in storage (preventing its use in training).

Over time, the relative and absolute U.S. capability for strategic deployment by air or with prepositioning techniques has increased substantially. On the other hand, the sealift posture has eroded considerably, partly because of the aging and non-replacement of the once large U.S. merchant fleet, partly because of changes in the shipbuilding and merchant marine industry in the United States, and partly because of shifts in the global shipping industry.<sup>64</sup> A major initiative to acquire mobility resources of all types was outlined by the McNamara administration, but for political, cost, bureaucratic, and other reasons, only the airlift component of this plan was largely bought. In the mid 1970s, NATO POMCUS programs were greatly expanded (today the United States has equipment prepositioned in Europe for, among other things, six Army divisions and one USMC Brigade). With the fall of the Shah and the Soviet invasion of Afghanistan, a comprehensive mobility scheme to enable the United States to rapidly deploy posture into undeveloped and possibly unfriendly areas was launched. The United States was also able to take advantage of slumping shipping prices in the early 1980s to rehabilitate part of our military sealift resources.

It is difficult to quantify these capabilities very thoroughly. Consequently, Fig. 15 and Table 7 provide brief overviews of the historical U.S. posture in two of these mobility areas, namely, U.S. strategic airlift resources and U.S. sealift.

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<sup>64</sup>For instance, modern, highly cost-effective shipping emphasizes containerization: the break-bulk cargo ship of World War II fame is economically a thing of the past. But containerization requires sophisticated port facilities, and container ships have grown to a size where not every port can accommodate them.

Note, in Fig. 15, the movement over time, first, to an all-jet force, and then a force composed of highly productive, air refuelable outsize and oversize capable airlifters (of the C-141, C-5, and, perhaps ultimately, C-17 varieties). If U.S. procurement plans for CRAF and C-17 continue as planned, the United States should reach its airlift objective<sup>65</sup> by the mid- to late 1990s.

Currently, the United States possesses about five-sixths of its nominal requirement for strategic sealift.<sup>66</sup> However, analysis of sealift needs are made complex by the many different types of ship required, and by a number of definitional quandaries (for instance, how to treat alliance shipping, U.S. shipping registered overseas, etc.). Nonetheless, we are struck by the relative deterioration of U.S. sealift capabilities over time. Ship types include various stores and cargo ships (of several types, including containerized shipping,<sup>67</sup> Ro/Ros, and so on), tankers, and the like. Some of these come under the direct control of the Military Sealift Command (that is, they have largely civil service crews), others are under contract to the Navy, others are in some form of reserve,<sup>68</sup> others are in a status analogous to CRAF,<sup>69</sup> while, finally, others would be provided by various allies. In general,

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<sup>65</sup>Of 66 million ton-miles per day of airlift, as specified by the Congressionally Mandated Mobility Study (CMMS).

<sup>66</sup>The requirement is the transportation of one million tons of noncontainerized unit equipment in a single voyage, presumably by all available ships. In addition, the U.S. goals include prepositioning afloat of equipment and supplies for three Marine Expeditionary Brigades, and certain other afloat prepositioning. The prepositioning for the three MEBs is in hand aboard thirteen ships; additional afloat stockage for SWA is available aboard 12 ships.

<sup>67</sup>Containerized shipping poses problems for military sealift planners in that, while more productive, it lacks flexibility and requires more in the way of port infrastructure. However, acquisition of capabilities to render military needs more compatible with such ships and certain special handling capabilities (e.g., crane ships) mitigate some of these problems.

<sup>68</sup>The traditional U.S. merchant reserve fleet--the National Defense Reserve Fleet--was once enormous (as many as 2,000 ships), but over the years it fell into great disrepair. Thus, many older NDRF ships were disposed of, and a new rapid reaction sealift force, the Ready Reserve Force, has been built up during the 1980s. A glut on the market of certain types of cargo ships in the early 1980s made this possible.

<sup>69</sup>The U.S. flag fleet could supply, in a full-scale mobilization, some 200 dry cargo ships and 120 tankers.

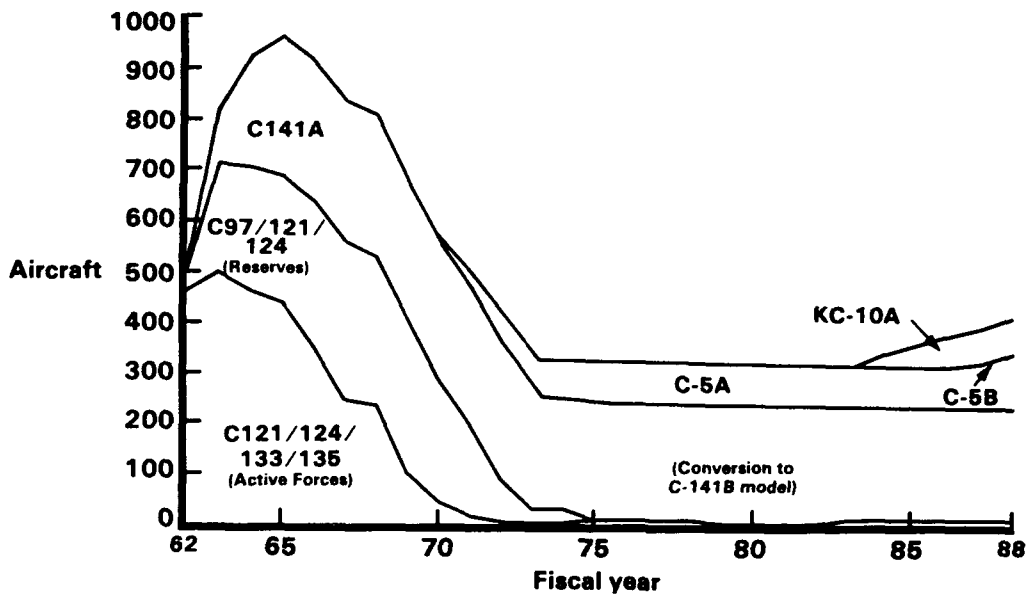


Fig. 15--U.S. Strategic Airlift Profile, FY62-88

this force was formidable up through the 1960s, fell into disrepair in the 1970s, and has been rehabilitated considerably in the 1980s. Table 6 provides a view over time of leading elements of this posture.

Table 7

TRENDS IN U.S. STRATEGIC SEALIFT POSTURE, FY64-88

	Fiscal Year						
	64	68	72	76	80	84	88
Active Ships (MSC):							
Tanker	25	26	17	12	21	22	20
Cargo & Stores Ships	38	41	24	19	14	14	41
Other	38	63	-	-	-		
Controlled Fleet Charters:							
Tanker	-	-	21	14	14	10	*
Cargo	-	-	1	21	23	26	*
Ready Reserve Force:	-	-	-	-	26	29	82
NDRF:	255	490	100	144	164	160	62

\*: Included in MSC line totals.

This concludes a necessarily brief survey of the U.S. posture over time, viewed in its largest elements. The reader is free to draw his own conclusions from these results, but a few things do stand out. First, U.S. military capabilities reflect both our strategy and the requirements of external contingencies to what may seem to some a surprisingly responsive extent. Second, only some of the factors shaping our posture are under our direct control, in contrast to the proposition that U.S. force structure can or should be constructed in a so-called "top-down" fashion. Third, the United States has balanced in a quite consistent manner the forces of inertia and innovation in force planning. Finally, posture can be, and certainly has been, far more stable than budgets, except when special circumstances are at work.